

Genus Halicanpus Kaup

Halicanpus Kaup, Cat. Lophobr. Fish
Brit. Mus., p. 22, 1856. (Type
Syngnathus conspicillatus Jenyns,
monotypic.)

Body elongate, rather stout, trunk
heptagonal. Tail tetragonal, twice
longer than trunk. Snout
slender, more or less depressed,
with rows of small spines,
shorter or much longer than rest
of head, abruptly ascending
to forehead which still more
elevated by spinous orbital
ridges. ^{Eyes prominent.} Opercle with longitudinal
convex keel, directed upwards,
with numerous radiating
striae. Occiput and neck elevated
into crest. Shields with prominent

edges, entire, incompletely divided in 2 or dentated or serrated and partly spinous, furnished with arborescent cutaneous appendages. Intermedial shields (scutella), prenuchal and nuchal shield present. Upper and lower keels of trunk and tail discontinuous, median keels of trunk and lower keels of tail continuous. Dorsal over 4 or 5 rings, base elevated, middle about above anus. Caudal present. All fins present. Eggs numerous, isolated in cutaneous cells on tail, enclosed in complete brood pouch beginning behind vent and formed by lateral cutaneous folds containing more or less developed osseous plates.

Indo Pacific.

Analysis of Species

a¹ Trunk rings 17 or 18; snout with median row of 2 or 3 spines in basal half. boilomatodon.

a² Trunk rings 14; snout with single spine before eyes. elegans.

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Hallicampus koilomatodon (Bleeker)

Syngnathus koilomatodon Bleeker,
Act. Soc. Sci. Ind. Néerl., (^{no. 9,} ~~Japan~~),
vol. 5, p. ⁽²⁾10, pl. 1, fig. 1, 1859 (type
locality, Nagasaki).

Hallicampus koilomatodon Duméril,
Hist. Nat. Poiss., vol. 2, p. 538, 1870
(copied). — Jordan and Snyder,
Annot. Zool. Japon., vol. 3, p. 58,
1901 (Nagasaki; Yokohama); Proc.
U. S. Nat. Mus., vol. 24, p. 10, 1901
(1902) (compiled). — Duncker,
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 111, 1914 (1915) (West
Ceylon, Andamans, Japan, Philippines,
Borneo & Straits, Thursday Island,
Prince of Wales Island, South New
Guinea, North West Australia). —

Serranus sebae Bleeker, Nat. Tijds.
Ned. Indië, vol. 6, 1854, p. 488.

Ambonia. — Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 137 (China;
Ambonia).

Serranus seba Elera, Cat. Fauna
Filip., vol. 1, 1895, p. 462 (Luzon,
Manila).

Serranus bontoides Bleeker, Nat. Tijds.
Ned. Indië, vol. 8, 1855, p. 405. Ambonia.
— Günther, Cat. Fishes Brit. Mus.,
vol. 1, 1859, p. 149 (copied). — Fowler,
Proc. Acad. Nat. Sci. Phila., 1927, p.
275 (Philippines).

Epinephelus bontoides Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, p.
53, pl. (9) 287, fig. 2 (Bali, Celebes,

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 ↑ Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 103, fig. 43, 1922 (Japan).

Fowler, Mem. Bishop Mus., vol. 10, p. 114, 1928 (compiled).

Halicanpus grayi Kaup, Cat. Lophobr. Fish Brit. Mus., p. 22, 1856 (type locality, India) (name in synonymy).

— Duméril, Hist. Nat. Poiss., vol. 2, p. 536, 1870 (Australia).

Duncker, Fauna Südwest Austral., Michaelsen and Hartmayer, vol. 2, p. 246, 1909. — Jordan, Yanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 95, 1913 (reference).

→
McCulloch and Whitley, mem.
Queensland Mus., vol. 8, pt. 2, p.
137, July 7, 1925 (reference). —
Fowler, mem. Bishop Mus., vol. 10,
p. 114, 1928 (compiled).

Halicanpus grayi Kaup, Cat. Lophobr.
Fish Brit. Mus., p. 22, 1856 (type
locality, India) (name in synonymy).
— Duméril, Hist. Nat. Poiss., vol. 2, p.
536, 1870 (Australia).

Duncker, Fauna Südwest Austral.,
Michaelsen and Hartmayer, vol. 2,
p. 246, 1909. — Jordan, Yanaka, Snyder,
Journ. College Sci. Tokyo, vol. 33,
p. 95, 1913 (reference).

h. 114, 143

Towles, July 1, 1877

Swainson

Black



~~capensis~~
~~entitus~~ 297
~~nocturno~~
~~nocephalus~~, ~~Evota~~ 395
+ ~~richardsoni~~ 344

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Serranus quoyanus Valenciennes, Hist.
Nat. Poiss., vol. 6, 1830, p. 519. New Guinea.
— Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 153 (~~Serranus~~ Celebes).

Serranus gaimardi Valenciennes, Hist.
Nat. Poiss., vol. 6, 1830, p. 520. New Guinea.
— Quoy and Gaimard, Voy. Astrolabe,
Zool., vol. 3, 1834, p. 656, pl. 3, fig. 3
(Vanicoro; New Guinea). — Günther,
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 150
(copied).

Epinephelus gaimardi Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, pl. (7)
285, fig. 1.

Serranus ara Schlegel, Fauna Japon., Poiss.,
pt. 1, 1842, p. 8. Japan.

Syngnathus grayi Günther, Cat.
Fish. Brit. Mus., vol. 8, p. 169, 1870

(types of S. hoilomatodon and
Halicampus grayi; Australia?).

Syngnathus grayii
Macleay, Proc. Linn. Soc. New
South Wales, vol. 6^{pt. 2}, p. 289, 1882.
(copied).

Halicampus conspicillatus (not Jenyns)
Kaup, Cat. Lophobr. Fish Brit. Mus.,
p. 22, 1856 (part).

Syngnathus trachypoma Günther,
Rep. Voy. Alert, Zool., p. 30, 1884
(type locality, Thursday Island;
Prince of Wales Island).

Trachyrhamphus caba Seale,
Philippine Journ. Sci., vol. 4^{no. 6}, p. 503,
November 1910 (type locality, Balayan Bay, Luzon).

Zool., vol. 1, pt. 5, 1865, p. 18 (Hong Kong;
~~Java~~). — Martens, Preuss. Exped. Ost-
 Asien, vol. 1, 1876, p. 385 (Nagasaki Bay).
 — Elera, Cat. Fauna Filip., vol. 1, 1895, p.
 459 (Samar).

Epinephelus trimaculatus Boulenger, Cat.
 Fishes Brit. Mus., vol. 1, 1895, p. 221
 (China). — Jordan and Snyder, Proc. U.
 S. Nat. Mus., vol. 23, 1901, p. 354 (Tokyo);
Seers, ~~Monatsh. Naturh. Ver.~~,
 1865, p. 110 (type). — Kner, Reise Novara,

Reisen, 1810, pl. 64, fig. 2. Japan.
Serranus trimaculatus Valenciennes, Hist.
 Nat. Poiss., vol. 2, 1828, p. 331 (on Krusenstern).
 — Schlegel, Fauna Japon., Poiss., pt. 1, 1842,
 p. 8 (Japan). — Richardson, Ichth. China
 Japon., 1846, p. 232 (Canton). — Cünther,
 Cat. Fishes Brit. Mus., vol. 1, 1859, p. 109
 (China, Japan, Cape of Good Hope). —
Peters, ~~Monatsh. Naturh. Ver.~~, Berlin

1344

Depth 17 to $22\frac{2}{3}$; head $6\frac{4}{5}$ to 8,
width $3\frac{4}{5}$ to 4. Snout 2 to $2\frac{1}{8}$ in
head from snout tip; eye 5 to $5\frac{4}{5}$,
 $2\frac{3}{4}$ to $2\frac{4}{5}$ in snout, greatly exceeds
front width of interorbital, $1\frac{1}{2}$
in posterior portion; median
line of snout posteriorly above with
1 to 4 close set spines posteriorly,
1 flaring out laterally each side
of snout and 1 close before each
eye; opercle with long curved
heel upward and well marked
striae radiating below.

Rings 17 or 18 + 33 to 35; edges
or heels all strongly serrate or
spinescent, shields transversely
striated. Upper trunk heel reaches
hind dorsal base, discontinuous
with upper caudal heel, which
begins on last or last 2 caudal
rings; median lateral trunk heel
and lower caudal heel continuous;

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lower trunk and median ventral
trunk keels not on caudal rings.

D. 19 to 20, on 2 or 3 trunk and
1 or 2 caudal rings, fin base
elevated, fin height $2\frac{7}{8}$ to 3 in
head; A. 3 or 4, minute; caudal
3 to $3\frac{1}{5}$ in head; pectoral equals
eye, rays 16 to 18.

Light brown, marbled with
whitish. Often 14 to 16 brown
cross bands variably from 1 to 3
rings in extent. Usually each
ring suture narrowly dark.

Iris gray. Fins pale.

India, Ceylon, Andamans,
East Indies, Philippines, Japan,
North West Australia, Queensland.
A handsome species, remarkable
for its rough, spinescent, serrated
keels and ridges.

One example. Jolo. September 16, 1909.
Length 71 mm.

D. 5553. Hulade Island (NW.), S. 4°
E., 0.5 mile (lat. $5^{\circ}51'00''$ N., long. 120°
 $46'30''$ E.), vicinity Jolo Island.
September 17, 1909. Length 71 to 74 mm.
Two examples.

D. 5561. Teomabal Island (NW.),
S. 36° W., 0.2 mile (lat. $5^{\circ}50'45''$ N.,
long. $121^{\circ}01'15''$ E.), vicinity Jolo
Island. September 18, 1909. Length
64 to 73 mm. Four examples.

Halicanpus elegans (Steindachner)

Doryichthys elegans Steindachner,
Abhandl. Senckenb. Naturf. Gesell.,
vol. 25, p. 459, ^{fig.} 1901 (type locality,
Ternate).

Halicanpus elegans Weber and
Beaufort, Fish. Indo Austral.
Archip., vol. 4, p. 104, 1922 (copied).

1344d

Depth 18 to $20\frac{1}{2}$; head $7\frac{2}{3}$ to 9,
width $2\frac{1}{8}$ to $2\frac{1}{5}$. Snout $2\frac{4}{5}$ to 3 in
head; eye $4\frac{1}{8}$ to $4\frac{1}{4}$, $1\frac{1}{5}$ to $1\frac{1}{3}$ in
snout, greatly exceeds interorbital;
snout above with median row
of 2 or 3 spines and 2 preocular
spines each side; interorbital
half of eye, concave; supraorbital
keel back eye diameter behind
eye; occipital - nuchal keel to
first trunk ring; opercular
keel prominent, basal, little less
than eye, with fine radiating
striae.

Rings 14 + 29 or 30; keels
protruded, prominent, strongly
serrated, each ending in spine
at ring articulation, rough to
touch. Upper trunk keel reaches
hind end of dorsal base,
discontinuous with upper caudal
keel; median lateral trunk keel

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deflected and continuous with lower caudal keel; lower trunk and median ventral keels not reaching tail.

D. 18 or 19, on 1 trunk and 4 caudal keels, fin base not elevated, fin height equals eye; A. minute; caudal long as eye; pectoral long as eye, rays 10.

Brownish. Snout with 2 dark bands below. Two blackish brown filaments each side of snout below, pair under eyes, 1 on each lower surface of opercle, 1 at each opercular keel, 1 from each postocular, 1 above each orbit and longer one posteriorly and higher, also short one at occiput. Iris gray.

Previously only known from Ternate. The following specimens will therefore add the species to the Philippines.

One example. Tataan, Simaluc
Island. February 17, 1908. Length
41 mm.

[256.] Tataan. February 20, 1908.
Length 54 mm.

Genus Ichthyocampus Kaup

Ichthyocampus Kaup, Cat. Lophobr.

Fish Brit. Mus., p. 29, 1856. (Type

Ichthyocampus belcheri Kaup,

designed ^{at} by Jordan, Genera of
~~Fishes~~, vol. 2, p. 253, 1919.)

Duncker, Mitteil. Naturh. Mus.

Hamburg, vol. 29, p. 234, 1912.)

Body rather stout. Head only slightly elongated. Snout short, somewhat compressed, upper profile with median sharp or low ridge. Opercle much higher than long, somewhat inflated, smooth or shagreened without keel or with complete or at least basal keel with radiating lines. Shields sculptured, edges more or less prominent, smooth or more slightly crenulated or even dentated, sometimes with split cutaneous appendages. Intermedial shields present as also prenuchal and nuchal. Upper ridges of trunk and tail continuous; lower ridges of trunk and tail discontinuous but last continuous with median ridge of trunk or

third spine $2\frac{3}{4}$ to 4, third ray 2 to $2\frac{2}{5}$; caudal $1\frac{3}{5}$ to $1\frac{4}{5}$, convex behind; least depth of caudal peduncle $3\frac{2}{5}$ to $3\frac{3}{5}$; pectoral $1\frac{3}{5}$ to $1\frac{4}{5}$; ventral $1\frac{7}{8}$ to $2\frac{1}{5}$.

Brown, little paler on chest, breast and abdomen. Back, sides and head above covered with obscure slightly darker spots, smaller than eye. Dark or blackish line in groove of maxillary above. Young with 6 slightly inclined transverse darker bands, which extend on vertical fins. Vertical fins of young grayish, with obscure darker blotches.

lower ridge of trunk and tail continuous when median ridge and trunk end free. Eggs isolated in cutaneous cells on tail, completely enclosed in brood pouch formed by lateral folds beginning at vent which may contain osseous plates. All fins present. Dorsal short, on 4 to 6 rings, which mostly on tail. Caudal short.

Marine shore fishes, some living in deeper water and also in fresh and brackish water. Indo-Pacific.

Scales 77 to 117 in lateral line to caudal base and 10 to 15? more on latter; pores 50 to 55 in lateral line to caudal base and 10 to 12 more on latter; 17 to 22 scales above lateral line, 30 to 31 below, 63 to 50 predorsal, 24 to 28 rows across cheeks; body scales with minute basal accessory scales; fine scales cover bases of fins; maxillary with upper half of expansion scaly, forming about 12 transverse rows. Scales with 4 or 5 basal radiating striae; 38 or 39 apical denticles with 10 transverse series; circuli very fine.

D. XI, 17, I or 18, I, third spine $2\frac{3}{5}$ to $3\frac{1}{10}$ in total head length, first ray $2\frac{2}{5}$ to $3\frac{1}{5}$; A. III, 8, I, I.

Analysis of Species

a.¹ Opercle at least with basal beel anteriorly, occasionally complete.

b.¹ D. 14.

c.¹ Rings 16 + 33 or 34.

townsendi.

c.² Rings 16 + 47 or 48.

filum.

b.² D. 17; rings 17 + 32.

philippinus.

b.³ D. 19 or 20; rings 16 + 30 or 31.

belcheri.

b.⁴ D. 22; rings 16 + 36.

erythraeus.

b.⁵ D. 23 to 27.

d.¹ Rings 14 or 15 + 37 to 40.

carce.

d.² Rings 19 or 20 + 40 or 41.

cristatus.

a.² Opercle without beel.

e.¹ D. 16 or 17; rings 16 + 33 to 36.

galei.

e.² D. 18 to 20.

f.¹ Rings 14 + 38.

pictus.

f.² Rings 16 or 17 + 33 to 36.

bannwarthi.

e.³ D. 25; rings 19 + 39.

scalaris.

Opercle without keel.

Rakers 16 + 33 to 36. ^{Median} ~~Lower~~, lateral
trunk keel continuous, ~~from middle of~~
trunk ending.

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Ichthyocampus townsendi Duncker

Ichthyocampus townsendi Duncker,
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 96, 1914 (1915) (type
locality, Persian Gulf; Mebran
Coast; Baluchistan; Maldives).

Opercle with basal longitudinal keel
 $\frac{1}{3}$ to $\frac{1}{2}$ its length.

Rings 16 + 33 or 34; keels distinct;
abdominal keel not pronounced; no
flaps. Lower trunk and caudal keels continuous.

D. 16 to 18, on 1 trunk and 4 caudal
keels; A. rays 2; caudal 8 to 10, small;
pectoral rays 10 or 11.

Brown. Young with 3 body and 6
caudal deep brown blotches above. Others
marbled lighter. Length 54 mm.

(Duncker)

Persian Gulf, Baluchistan, Mebran,
Maldives.

1891, p. 62. — Boulenger, Cat. Fishes
 Brit. Mus., vol. 1, 1895, p. 198 (Zanzibar,
 Mauritius, Rodrigues, Ceylon, Madras,
 China, Formosa, Norfolk, Micronesia,
 Ponapé). — Pellegrin, Bull. Mus. Hist.
 Nat. Paris, vol. 13, 1907, p. 204 (Tulear
 Bay, Madagascar). — Gilchrist and
Thompson, Ann. South Afr. Mus., vol.
 13, pt. 3, 1914, p. 67 (Natal). — Barnard,
 Ann. South Afr. Mus., vol. 21, 1927, p. 475
 (Natal coast).

Epinephelus flavocaeruleus var.
flavocaeruleus Steindachner, Denkschr.
 Akad. Wiss. Wien, vol. 71, pt. 1, 1907, p. 125.
 (Gischin, Makalla, Socotra).

Holocentrus gymnotus Lacépède, Hist.
 Nat. Poiss., vol. 3, 1802, pl. 27, fig. 2; vol.
 4, 1802, pp. 335, 372. Chinese manuscript
Gordianus macrocephalus Lacépède, Hist. Nat.
 Poiss., vol. 3, 1802, pl. 20, fig. 3; vol. 4, 1802,

Ichthyocampus filum Günther

Ichthyocampus filum (Günther), Cat. Fish. Brit. Mus., vol. 8, p. 178, 1870 (type locality, Bay of Islands, New Zealand; Freycinet's Harbor). —

Hutton, Fishes of New Zealand, p. 68, 1872.

— Macleay, Proc. Linn. Soc. New South Wales, vol. 6, pt. 2, p. 292, 1882 (compiled).

— Waite, Rec. Canterbury Mus., vol. 1, no. 10, p. 14, 1907 (reference). — McCulloch,

Rec. Austral. Mus., vol. 7, no. 4, p. 318, pl. 9, fig. 1, August 30, 1909 (near Sydney). — Duncker, Fauna

Südow. Austral. ^(Shark's Bay) Michaelson and Hartmeyer, vol. 2, p. 241, 1909; Rec. Austral. Mus., vol. 7, no. 4. Mitteil.

Naturh. Mus. Hamburg, vol. 32, p. 92, 1914 (1915) (Shark's Bay, Western Australia). — Rendahl,

(Whisham and Nagasaki). — Smith
 and Pope, Proc. U. S. Nat. Mus., vol.
 31, 1906, p. 486 (Susaki and
Yamagawa). — Jordan and Richardson,
 Proc. U. S. Nat. Mus., vol. 37, 1910, p.
 448 (Sumatra). — Weber, Siboga Exped.,
 vol. ⁵⁷ ~~65~~ ^{Fische}, 1913, p. 201 (Sulu). — Fowler
 and Bean, Proc. U. S. Nat. Mus., vol.
 62, 1922, p. 29 (Takao, Formosa).

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Vidensk. Medd. Dansk Nat. Foren.
Kjøbenhavn, vol. 81, p. 2, 1925
(Plimmerton). — McCulloch, New Austral.
Mus., vol. 5, pt. 1, p. 89, June 29, 1929 (reference).

Trunk and head $2\frac{2}{3}$ in tail;
head very short, $2\frac{1}{2}$ to vent.
Snout 3 in head, very short,
turned upwards.

Rings 16 + 47 or 48, compressed,
without ridges.

D. 14; caudal well developed;
pectoral short, narrow. Vent
opposite middle of dorsal. Pouch
long as trunk lined with soft membrane.

Narrow brownish black cross bars,
corresponding to sutures between body
rings. Length 100 mm. (Günther.)

New Zealand, New South Wales,
Western Australia.

Arabia, Zanzibar, Mozambique,
Natal, Madagascar, Mauritius,
Réunion, Bourbon, Rodriguez,
India, Ceylon, Andamans, ~~Chagos~~
East Indies, Formosa, China,
Queensland, Micronesia. Our materials
are all like Verranus hoedtii.

6715 and 6716. Manila market.
December 4, 1908. Length 250 to 255 mm.
7084. Port Van Dierlant, Amiguier
Island. November 11, 1908. Length 390
mm.

Ichthyocampus belcheri Kaup

Ichthyocampus belcheri Kaup, Cat.
Lophobr. Fish Brit. Mus., p. 30, 1854
(type locality, China). — Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 177,
1870 (types). — Duméril, Hist. Nat.
Poiss., vol. 2, p. 539, 1870 (copied). —
Bleeker, Nederl. Tijds. Dierk., vol.
4, p. 126, 1873 (1874) (reference). —
{ Chu, (Bull. Biol.) St. John's Univ.,
No. 1, p. 98, January 1931 (reference).
— Duncker, Mitteil. Naturh. Mus.
Hamburg, vol. 32, p. 95, 1914 (1915)
(Kossir, Red Sea, Bawaii Island
at Zanzibar).

Ichthyocampus belcheri Elera,
Fauna Filipinas, vol. 1, p. 597, 1895
(Luzon, Manila, Navotas).

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Serranus coromandelicus Day.

Serranus coromandelicus Day, Fishes of India, pt. 4, 1878, p. 746 (on Epinephelus dayi Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 47). — Boulenger, Proc. Zool. Soc. London, 1887, p. 237 (Muscat, Arabia). — Day, Fauna Brit. India, vol. 1, 1889, p. 445.

Serranus coromandelicus Pearson, Rep. Gov. Marine Biol. Ceylon, 1912-13, pt. 4, p. E13 (between Chilaw and Colombo); 1914, pt. 4, p. E5 (Chevaal Paar Group).

Serranus (Epinephelus) coromandelicus Zugmayer, Abhandl. Bayer. Akad. Wiss., vol. 26, pt. 6, 1913, p. 9 (Oman).

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Ichthyocampus noy Snyder, Proc.
U. S. Nat. Mus., vol. 36, p. 598,
1909 (type locality, Raha, Okinawa);
vol. 42, p. 495, pl. 62, fig. 3, 1912
(Raha).

Ichthyocampus bampeni Weber,
Siboga Exped., vol. 57, Fische, p. 114,
fig. 40, 1913 (type locality; Beo,
Karabalang Island; Liring,
Salibabu Island; Ajatuning,
western New Guinea; Amboina).
— Weber and Beaufort, Fishes
Indo Austral. Archip., vol. 4, p.
93, fig. 38, 1922 (types). — Fowler,
Mem. Bishop Mus., vol. 10, p. 112,
1928 (compiled).

5426. Cebu market. April 7, 1908.

Length 327 mm.

18672. Hinuntangan Bay, Leyte Island. July 30, 1909. Length 112 mm. [1785].

5878. ~~Malabang~~ market, southern Mindanao. May 22, 1905. Length 310 mm.

more on latter; 22 to 25 scales above lateral line, 42 or 43 below, 60 to 66 predorsal, 30 to 33 rows on cheek; body scales with numerous small basal auxiliary scales; fine scales over most of fins basally; upper $\frac{2}{3}$ of maxillary scaly. Scales with 3 to 5 basal radiating striae; 10 to 16 apical denticles, with 3 to 10 transverse series; circuli fine.

D. IX, 16, I, third spine $2\frac{3}{4}$ to 3 in total head length, first

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Depth $15\frac{3}{4}$ to 18; head 8 to $8\frac{1}{2}$, width
width $2\frac{1}{5}$ to $2\frac{1}{4}$. Snout $2\frac{1}{2}$ in head
from snout tip; eye 5, 2 to $2\frac{1}{4}$ in
snout, greater than interorbital;
snout above with strong median keel,
ending abruptly on interorbital,
also lateral one each side to eye;
interorbital $1\frac{1}{2}$ in eye; opercle
with short anterior keel, with
numerous fine radiating lines.

Rings 16 + 30 or 31; with fine
transverse striae. Upper trunk and
caudal keels continuous; median
lateral trunk keel on 3 front
caudal rings; lower trunk and
caudal keels continuous; median
ventral keel low, to vent. Keels
all smooth.

D. 19 or 20, on 1 trunk and 5
caudal rings, height $1\frac{4}{5}$ in
snout, base not elevated; A. 3,
minute; caudal $1\frac{4}{5}$ to 2 in snout;
pectoral $3\frac{4}{5}$ in head, rays 10?

Brown to nearly black.

Fins pale. Iris gray.

Red Sea, Zanzibar, East Indies,
Philippines, China, Riu Kiu.

One example. Canimo Pass, near
Laet Point, Luzon. June 15, 1909.
Length 59 mm.

One example. Maculabo Island.
June 4, 1909. Length 47 mm.

Three examples. San Miguel
Harbor, Ticao Island. April 23, 1908.
Length 13 to 18 mm. Evidently
young of the present species but
like Ichthyocampus hamperi.
Median lateral cristae extend over
3 or 4 anterior caudal rings.

One example. Varadero Bay.
July 23, 1908. Length 42 mm.

~~U. S. N. M.~~
U. S. N. M., No. 62945. Okinawa,
Riu Kiu. Albatross Collection 1906.
Length 52 mm. Type of
Ichthyocampus noy.

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Ichthyocampus erythraeus Gilbert

Ichthyocampus erythraeus Gilbert,
Bull. U.S. Fish Comm., vol. 23, pt. 2,
p. 613, fig. 238, 1903 (1905) (type
locality, off Molokai, Hawaiian
Islands, 23 or 24 fathoms). —

Jordan and Seale, Bull. Bur. Fisher.,
vol. 25, p. 215, 1905 (1906) (reference).

— Günther, Journ. Mus. Godeffroy,
vol. 9, p. 432, 1910 (compiled). —

Sencker, Mitteil. Naturh. Mus.

Hamburg, vol. 32, p. 96, 1914 (1915)

(compiled). — Fowler, Mem. Bishop
Mus., vol. 10, p. 113, 1928 (compiled).

Serranus (Epinephelus) areolatus
Zugmayer, Abhandl. Bayer. Akad.
Wiss., vol. 26, pt. 6, 1913, p. 9
(Mekran und Oman).

Bodianus melanurus Geoffroy
St. Hilaire, Descript. Egypte, Poiss.,
1809, p. 317, pl. 21, fig. 1. Suez.

Serranus melanurus Isadore
Geoffroy St. Hilaire, Descript. Egypte,
Poiss., vol. 1, pt. 1, 1827, p. 319. —

Valenciennes, Hist. nat. Poiss., vol. 2, 1828,
p. 351 (Suez). — Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 147 (copied).

Serranus angularis Valenciennes, Hist.
nat. Poiss., vol. 2, 1828, p. 353. Ceylon.
— Day, Fishes of India, pt. 1, 1875,
p. 22, pl. 5, fig. 2. — Steindachner and
Döderlein, Denkschr. Akad. Wiss. Wien,
vol. 47, pt. 1, 1883, p. 232 (Kagoshima Bay
and Oshima). — Boulenger, Proc.

1361

Depth $2\frac{3}{4}$; head $6\frac{3}{4}$, width $3\frac{1}{3}$.

Snout 2 in in head from snout tip; eye $6\frac{3}{4}$, $2\frac{1}{2}$ in snout, greater than interorbital, directed laterally; median keel on snout to interorbital, edge posteriorly minutely serrated; supraorbital keel elevated, extends little behind eye; occipital nuchal ridge low, not on first trunk ring; interorbital narrow, $1\frac{1}{2}$ in eye, little concave; opercle ~~occiput~~ with strong ^{keel} curved upward, striae minute or feeble.

Rings 15 + 36; with minute transverse striae; keels smooth. Upper trunk and upper caudal keel continuous; median lateral trunk keel extends on first caudal ring; lower trunk and lower caudal keel continuous; median ventral trunk keel, low, distinct, to vent.

1362

D. 22, on 1 trunk and 5 caudal rings, fin base not elevated, fin height $3\frac{3}{4}$? in total head length; A. minute; caudal rays 6; pectoral 14, fin 6 in total head.

Brown, each ring with pale line behind articulation. Iris gray. Fins pale brown.
Hawaii, only known from the type described above.

U. S. N. M., no. 51548. Off south coast of Molokai. Albatross Collection (no. 3847). In 23 to 24 fathoms. Length 52 mm. Type.

1363

Ichthyocampus carce (Buchanan-Hamilton)

Syngnathus carce Buchanan-Hamilton,
Fishes of Ganges, p. 13, 1822 (type
locality, Ganges River). — Gray,
Illustrat. Indian Zool. Hardwicke,
pl. 89, figs. 1-a, 1832. — Bleeker,
Verh. Batavia. Genoot. (Nal. Ichth.
Bengal), vol. 25, p. (80) 161, 1853
(Calcutta); vol. 26, pl. 3, fig. 4,
1857.

Ichthyocampus carce Kaup, Cat.
Lophobr. Fish Brit. Mus., p. 30,
1856 (Java). — Bleeker, Act. Soc.
Sci. Ind. Néerl. (Sumatra), vol. 8,
p. 71, 1859 (Java; Benculen). —
Günther, Cat. Fish. Brit. Mus., vol.
8, p. 176, 1870 (River Hooghley; "Assam").
— Duméril, Hist. Nat. Poiss., vol. 2,
p. 540 (Calcutta; Java). — Day,

first ray $2\frac{1}{3}$ to $2\frac{4}{5}$; A. III, 8, I,
 third spine $3\frac{1}{8}$ to 4, third ray $2\frac{1}{8}$
 to $2\frac{1}{5}$; caudal $1\frac{1}{2}$ to $1\frac{3}{5}$, emarginate
 behind, truncate in young; least
 depth of caudal peduncle 3 to $3\frac{2}{5}$;
 pectoral $1\frac{1}{2}$ to $1\frac{4}{5}$; ventral $1\frac{4}{5}$ to
 $1\frac{7}{8}$.

Gray brown generally, scarcely
 paler below. Body, head and fins
 all marked with numerous, large,
 rounded close set darker blotches,
 in diameter about width of
 interspaces. With age hind caudal
 edge narrowly pale.

Red Sea, Arabia, Madagascar, India,
 Ceylon, Andamans, East Indies,
 Philippines, Formosa, Japan.

Fishes of India, pt. 4, p. 679, pl. 174, fig. 2, 1878; Fauna British India, Fishes, vol. 2, p. 464, fig. 165, 1889. — Duncker, Mitteil. Naturh. Mus. Hamburg, vol. 21, p. 188, 1903 (1904) (Muar River); vol. 32, p. 94, 1914 (1915) (British India; Malayan Peninsula; Java; Sumatra?). — Weber and Beaufort, Fish. Indo Austral. Arch., vol. 4, p. 92, 1922 (Bleeker's material).

Ichthyocampus carce Bedot, Rev. Suisse Zool., vol. 17, p. 169, 1909 (Amboina). — Chevey, Inst. Océan. Indo Chine, 19^e hate, p. 18, August 25, 1932 (Indo China).

Ichthyocampus carce Tirant, Serv. Océan. Pech. Indo Chien, p. 175, 1929 (Phu Yen).

greater than gill filaments; 7
above and 4 below rudimentary.

Scales 93 to 96 in lateral line
to caudal base and 14 to 15 more
on latter; tubes 46 to 51 in lateral
line to caudal base and 2 or 3 more
on latter; 19 or 20 scales above
lateral line, 32 or 33 below, 60 to 70
predorsal, 30 or 31 rows across cheek
to preopercle angle; body scales
without minute basal auxiliary
scales and fins all finely scaled
basally; upper $\frac{2}{3}$ of maxillary
expansion scaly, with 12 transverse
rows of scales. Scales with 5 or 6
basal radiating striae; 32 to 38
apical denticles, with 6 or 7 transverse
series; circuli fine.

D. XI, 17, I or 16, I, third spine
 $2\frac{1}{3}$ to $2\frac{3}{5}$ in total head length,

1365

Hippichthys heptagonus Bleeker,
Verh. Batavia. Genoot. (Madura),
vol. 22, p. 15, 1849 (type locality,
Madura Straits).

Syngnathus heptagonus Bleeker,
Verh. Batavia. Genoot. (Troak.),
vol. 25, p. 23, 1853 (Madura Straits
near Kammal and Surabaja);
Nat. Tijds. Nederl. Indië, vol. 17,
p. 143, 1858-59 (Boleling, Bali);
Act. Soc. Sci. Ind. Néerl. (Sumatra),
vol. 8, p. 72, 1859 (Java; Madura;
Bali). — Günther, Cat. Fish.
Brit. Mus., vol. 8, p. 173, 1870
(discussion). — Duméril, Hist. Nat.
Poiss., vol. 2, p. 548, 1870 (compiled).

1198

Depth $2\frac{7}{8}$ to $3\frac{1}{8}$; head $2\frac{2}{5}$ to $2\frac{1}{2}$, width 2 to $2\frac{1}{5}$. Snout $3\frac{2}{5}$ to 4 in head from snout tip; eye $4\frac{1}{6}$ to $4\frac{3}{5}$, $1\frac{1}{6}$ to $1\frac{1}{5}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{2}$ to $\frac{3}{4}$ in eye, expansion $1\frac{4}{5}$ to 2, length $2\frac{1}{4}$ to $2\frac{1}{3}$ in head from snout tip; teeth in narrow bands in jaws, mandibulars largely biserial, but become uniserial behind; band of fine teeth on vomer and palatines; pair of small canines in front of each jaw, often double; interorbital $6\frac{1}{8}$ to $7\frac{1}{5}$ in head from snout tip; hind preopercle edge serrate, with 2 or 3 serrae enlarged at angle; median opercular spine little nearer lower and upper most advanced. Gill rakers 9 + 16, lanceolate, $2\frac{1}{8}$ in eye or much

Syngnathus platygnathus (Kuhl
and Van Hasselt) Kaup, Cat.
Lophobr. Fish Brit. Mus., p. 30,
1856 (name in synonymy).

Ichthyocampus ponticerianus Kaup,
Cat. Lophobr. Fish Brit. Mus., p.
31, 1856 (type locality, Pondicherry;
Macassar; Assam). — Day, Fishes
of Malabar, p. 263, 1865. — Duméril,
Hist. nat. Poiss., vol. 2, p. 540, 1870
(types).

Ichthyocampus pondicerianus Kner,
Reise Novara, Fische, p. 391, 1865
(Nicobars).

Typhlus ponticerianus (Bibron)
Kaup, Cat. Lophobr. Fish Brit. Mus.,
p. 31, 1856 (name in synonymy).

Filip., vol. 1, 1895, p. 462 (Samar,
Cebu, Masugbo).

Serranus glaucus Day, Proc. Zool.

Soc. London, 1870, p. 678. Unclamans.

Epinephelus craspedurus Jordan and

Richardson, Proc. U. S. Nat. Mus., vol.

37, 1910, p. 447, fig. 7. Kagoshima, Japan.

— Snyder, Proc. U. S. Nat. Mus., vol.

42, 1912, p. 13 (Kagoshima). — Jordan

and Hubbs, Mem. Carnegie Mus., vol.

10, no. 2, 1925, p. 235 (Toba).

Head 9 to $9\frac{1}{2}$. Snout equals or somewhat longer than postorbital, with median ridge above; eye 5 to 6 in head, 2 in snout; front and vertex more or less rough with rugose lines; opercle inflated, with complete longitudinal keel and radially arranged rugosities and radiating lines.

Rings 14 or 15 + 37 to 40; transversely striated; prominent keels smooth or only slightly crenulated. Lower trunk and caudal keels generally continuous, when median lateral trunk keel may be deflected to lower caudal keel but not coalescent (by exception lower caudal and median lateral trunk keels continuous). Lateral intermedial shields, especially on tail, large and transversely oblong. 20 cutaneous appendages.

1368

D. 23 to 27, on ^{second} 2 to ^{third} 3, or seventh to ninth caudal rings; A. 2 or 3; caudal 9 to 11; pectoral 13 to 17.

Brown. White spot or white black-edged ocellus on each trunk ring along lower trunk and caudal pedals. Ventral surface of tail with alternating brown and yellow dots occasional. Ventral surface of snout and head with black points. Caudal black. Length 138 mm.
(Weber and Beaufort.)

India, Malaya, Ceylon, Nicobars, East Indies, Indo China.

1369

Ichthyocampus cristatus McCulloch and
Waite^

Ichthyocampus cristatus McCulloch
and Waite, Rec. ^{South} Australian Mus.,
vol. 1, p. 40, fig. 26, 1918 (type locality,
Spencer Gulf, South Australia).
— Waite and Hale, Rec. South Austral.
Mus., vol. 1, no. 4, p. 304, fig. 45,
January 29, 1921 (Spencer Gulf;
St. Vincent Gulf, Glenelg). —
Waite, Rec. South Austral. Mus.,
vol. 2, no. 1, p. 54, fig. 83, April 23,
1921 (reference). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1, p.
90, June 29, 1929 (reference).

Zool. Soc. London, 1887, p. 654

(Muscat, Arabia). — Day, Fauna
British India, vol. 1, 1889, p. 454.

Epinephelus angularis Bleeker,
Atlas Ichth. Ind. Néerl., vol. 7, 1876,
p. 48 (Sumatra, Nias, Singapore, Banca,
Java, Celebes, Sumbawa, Batjan,
Amboina). — Sauvage, Hist. Nat.

Madagascar, Poiss., 1871, p. 71.

Serranus celebicus Bleeker, Nat. Tijds.
Ned. Indie, vol. 2, 1851, p. 217. Bulucumba,
Celebes. — Günther, Cat. Fishes Brit.

Mus., vol. 1, 1859, p. 139 (Amboina). —

Klunzinger, Verh. zool. bot. Gesell.

Wien, vol. 20, 1870, p. 676 (Koseir, Red Sea).

— Martens, Preuss. Exped. Ost-Asien,
vol. 1, 1876, p. 386 (Larentuba, Flores).

— Meyer, Anales Soc. Españ. Hist.

Nat. Madrid, vol. 14, 1885, p. 8 (Cebu;

Korodo, Mysore). — Elera, Cat. Fauna

1370

Head $13\frac{1}{3}$ to $15\frac{1}{3}$, $3\frac{3}{5}$ to $4\frac{2}{5}$ in trunk. Trunk $1\frac{4}{5}$ to $2\frac{1}{10}$ in tail. Snout $3\frac{2}{5}$ in head, much shorter than postorbital, with elevated obtuse crest bifurcating to form very feeble supraorbital ridges, which continued backwards on each side of head to behind eyes; eye $4\frac{2}{3}$ in head, $1\frac{1}{3}$ in snout; interorbital flat, with low median ridge, subcontinuous with rostral crest and indefinite nuchal ridge; opercle with granular radiating striae and low median ridge; occiput and nape slightly elevated.

Rings 19 or 20 + 40 or 41; uniformly granular; broad at deep, beels well defined, back slightly concave, upper and lower beels continuous; lateral trunk ridge reaches 2 anterior caudal rings and deflected outward on second;

median ventral trunk ridge
low.

D. 26 or 27, on 1 or 2 trunk and 5
caudal rings; A. minute; caudal
rays 8; pectoral 12.

Ground color creamy. Snout
with sooty marks. Each scale on
upper half of body from nape
to end of tail with gray ring,
which touches its fellow in
median dorsal line, upper angle
bisecting rings. Lower half of
trunk ^{with} brown, diamond shaped
outlines, alternating with rings
above. Length 214 mm.
(Waite and Hale.)

South Australia.

1371b

Ichthyocampus galei Duncker

Ichthyocampus galei Duncker,
Fauna Südw. Austral. Michaelson
and Hartmeyer, vol. 21, ^{pt. 1,} p. 96, 1909
(type locality, Shark's Bay,
Freycinet Estuary, Western Australia).

Mitteil. Naturh. Mus. Hamburg, vol.
37, p. 96, 1914 (1915) (type). — McCulloch
and Whitley, Mem. Queensland
Mus., vol. 8, pt. 2, p. 137, July 7, 1925
(reference). — McCulloch, Mem. Austral.
Mus., vol. 5, pt. 1, p. 90, June 29, 1929 (reference).

— Boulenger, Zoological Record, Pisces,
p. 46, 1909 (1911) ("Queensland" erroneous).

— Duncker,

slightly emarginate behind;
least depth of caudal peduncle
 $3\frac{1}{3}$ to $3\frac{2}{5}$; pectoral $1\frac{4}{5}$ to $1\frac{7}{8}$;
ventral $1\frac{7}{8}$.

Pale grayish or lavender brown.
Head and body finely and
closely dotted all over with
deeper or dusky brown, dots
very close set and exceedingly
numerous, not present on lower
surface of head, chest, breast
and belly. Iris yellowish. Fins
all more or less dotted with
darker, only pectoral paler
terminally and ventral darker
terminally. Dorsals, anals and
caudal with submarginal dusky
shades and edges narrowly whitish
on rayed fins.

Opercle without keel.

Rings 16 + 33 to 36. Median lateral trunk keel ends on first or second caudal rings

D. 16 or 17; on 1 trunk and 3 caudal rings; A. 3; caudal 8; pectoral 7 or 8

Yellowish brown. Median bar behind pectoral large red blotch. Length 55 mm. (Duncker.)

Western Australia.

Ichthyocampus pictus Duncker

Ichthyocampus pictus Duncker,
Mittel. Naturh. Mus. Hamburg,
vol. 32, p. 95, 1914 (1915) (type locality,
Gulf of Manaar, Western Ceylon).

Serranus punctatissimus Günther,
Cat. Fishes Brit. Mus., vol. 1, 1859, p.
144, China.

Epinephelus flavoceruleus var.
melanometopon Bleeker, Nat. Tijds.
Dierk., vol. 4, 1874, p. 96. Bourbon Island;
Rech. Faun. Madagascar, Pollen, pt. 4,
1877, p. 17 (Borbonia).

Epinephelus flavoceruleum var.
xanthometopon Bleeker, Nat. Tijds. Dierk.,
vol. 4, 1874, p. 97 (on Holocentrus
flavoceruleus Lacépède).

Homalogrystes luctuosus de Vis, Proc.
Linn. Soc. New South Wales, vol. 7, 1882,
p. 369. Brisbane, Queensland.

Opercle without keel, smooth. 1371e

Rings 14 + 38; median trunk keel ends at last trunk ring. No flaps. Lower trunk and caudal keels continuous.

d. 18, on 1 trunk and 4 caudal keels; fin short; no anal; caudal rays 9, rudimentary; pectoral rudimentary, rays 5.

Brown, with some longitudinal blotches on upper side of head, and on first 6 body rings lateral blotches darker. Abdominal keel dark brown. Clear streak from middle of hind orbital edge over opercle to pectoral base. Below equally wide dark brown streak from snout tip, through lower orbital edge between pectoral bases and lower trunk keels to second trunk ring, edges darker. Pectoral whitish basally, with united short dark streaks on interradial membrane near free edge. Length 54 mm. (Duncker.) West Ceylon.

13718

Ichthyocampus bannwarthi Duncker

Ichthyocampus bannwarthi Duncker,
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 93, 1914 (1915) (type
locality, Suez). — Hora, Rec.
Indian Mus., vol. 27, pt. 6, p. 467,
pl. 11, fig. 3, December 1925 (Tor,
Sinaitic Peninsula).

Epinephelus coromandelicus Boulenger,
Cat. Fishes Brit. Mus., vol. 1, 1895,
 p. 204 (type, Madras; Muscat). —
Weber, Siboga Exped., vol. 85, ^{57 Fische,} 1913,
 p. 202 (Tual, Nidrig Kei).

Serranus longispinis (part) Playfair,
Fishes of Zanzibar, 1866, p. 10.

Epinephelus dayi (non Bleeker 1873)
Bleeker, Atlas Ichth. Ind. Néerl.,
 vol. 7, 1873-76, p. 47 (on Serranus
waandersi, non Bleeker, Day, 1875).

Serranus waandersi (non Bleeker 1873-76)
Day, Fishes of India, pt. 1, 1875, p. 12,
 pl. 8, fig. 1.

Epinephelus albinuculatus Seale,
Philippine Journ. Sci., vol. 4, no. 6, November,
 1909, p. 509. Butuan Bay, Mindanao.

Epinephelus albinaculatus Seale, Philippine
Journ. Sci., vol. 4, no. 6, November 1909, pl. 6.

Opercle without keel, smooth.

1371g

Rings 16 or 17 + 33 to 36. Keels weak, belly rounded; lower trunk and caudal keels discontinuous; median lateral trunk keel and lower caudal keel continuous. Small flap at middle of dorsal on upper trunk and caudal keels and along lower keels anteriorly, suborbital, 4 or 5 median on preopercular and opercular, 2 or 3 at base and 4 or 5 at hind opercle edge and 1 before gill opening.

D. 18 to 20, on 1 trunk and 3 trunk and 2 or 3 caudal rings; A. 3 or 4; caudal rounded, rays 10; pectoral rays 11 or 12.

Yellowish gray with 18 dark cross bands, usually in groups of blackish blotches between trunk keels, first before pectoral above suprascapula, sixth at anal ring. Lt interorbital edge 2

13712
or 3 transverse and behind eye 2 to
6 longitudinal large black spots.
Brown longitudinal band each
side of mandible through lower
orbital edge to middle of opercle.
Ventral side of head and opercle
with brown spots on clear ground.
Isthmus brown, darker in female.
Belly reddish, marbled with pale
clear brown and whitish. Fins
pigmented, rays blackish. Length
135 mm. (Duncker.)

Suez.

Ichthyocampus scalaris Günther

Ichthyocampus scalaris Günther,
Cat. Fish. Brit. Mus., vol. 8, p.
177, 1870 (type locality, Freycinet's
Harbor, Western Australia). —

Macleay, Proc. Linn. Soc. New South
Wales, vol. 6^{pt. 1}, p. 292, 1882 (compiled).

— Muncker, Fauna Südw. Austral.

Michaelson and Hartmeyer, vol. 2, ^{pt. 1},
p. 240, 1909 (Shark Bay);

Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 97, 1914 (1915) (Lagoon
Point, Western Australia). —

McCulloch, Proc. Linn. Soc. New
South Wales, vol. 40, pt. 2, p. 261,

June 30, 1915 (Western Australia);

Mem. Austral. Mus., vol. 5, pt. 1,

p. 89, June 29, 1929 (reference).

pp. 281, 293. No locality. (An Commerson.)

Serranus borbonicus duoy and Garnaud,
Voy. Uranie, Zool., December 18, 1924, p.
312, pl. 57, fig. 2. Bourbon Island.

Serranus borbonicus Guichenot, Notes
Ste Réunion, vol. 2, 1862, p. 23.

Perca flavopurpurea Bennett, Fishes
of Ceylon, 1828-30, pl. 19. Ceylon.

Serranus hoedti Bleeker, Nat. Tijds.
Ned. Indie, vol. 8, 1855, p. 406. Amboina.

— Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 139 (copied); Journ. Mus. Godeffroy,
vol. 1, pt. 1, 1873, p. 9, pl. 8, fig. A (Kingamilla).

Epinephelus hoedti Bleeker, Atlas Ichth.
Ind. Néerl., vol. 7, 1873-76, p. 45, pl. (5)
283, fig. 2 (Celebes; Amboina). —

Jordan and Evermann, Proc. U. S. Nat.
Mus., vol. 25, 1902, p. 342 (Formosa).

Epinephelus hoedti Ogilby, Mem. Queensland
Mus., vol. 1, 1912, p. 50 (Moreton Bay).

Head 9; body deep as wide.
 Tail twice long as trunk. Snout
 2 in head, long as postorbital in
 young; head above with scarcely
 trace of ridge along nuchal
 shields; opercle without keel.

Rings 19 + 39, ridges very
 obtuse.

D. 25, on 3 trunk and 4 caudal
 rings; caudal very short.

Body and tail with 13 to 15
 irregular broad brown cross
 bands, more distinct in young
 than in adults. narrow brown
 cross bar on suture between
 every 2 ventral shields. Lower
 side of head and breast with
 deep brown dots. Length 176
 mm. (Günther.)

Western Australia.

1371/2

Genus Urocampus Günther

Urocampus Günther, Cat. Fish. Brit. Mus., vol. 8, p. 179, 1870. (Type Urocampus nanus Günther, monotypic.)

Body elongate, compressed, with distinct longitudinal ridges. Upper trunk ridge continuous with upper caudal ridge. Lateral line continuous with lower caudal edge. Tail elongate, quadrangular, tapering. Dorsal entirely on tail, at great distance behind vent. Caudal and pectoral developed.

Synopsis of Species

- a¹ Vent. about last fourth between gill opening and dorsal origin. nanus.
- a² Vent midway between gill opening and dorsal origin. carinirostris.

13712

Urocampus nanus Günther

Urocampus nanus Günther, Cat.
Fish. Brit. Mus., vol. 8, p. 179, 1870
(type locality, Manchuria). —
Bleeker, Nederl. Tijds. Dierk.,
vol. 4, p. 126, 1873 (1874) (reference).
— Franz, Abhandl. Kon. Bayer. Akad.
Wiss., vol. 4, Suppl. Band 1, p. 22, 1910
(Misaki; Haidashi, 100 fathoms;
Kuma). — Duncker, Mitteil. Naturh.
Mus. Hamburg, vol. 32, p. 101, 1914
(1915) (Tokio). — Sowerby, Nat.
Manchuria, vol. 4, p. 155, 1930
(compiled).

Northern Arabia, Zanzibar, Mauritius,
Reunion, India, East Indies,
Philippines, China, Japan, Formosa,
North West Australia, Queensland.

A very handsome and variable species,
easily known by the numerous blue
longitudinal lines or narrow bands.

22786 and 22788. Busin Harbor,
Burias Island. March 8, 1909. Length
81 to 197 mm.

14540. Butuanan Island, east coast
Luzon. June 3, 1909. Length 100 mm.

22050 and 22285. Butuanan Island.
June 13, 1909. Length 67 to 88 mm.

12368. Candaraman Island, Balabac.
June 14, 1909. Length 113 mm.

10971, 10972, 15050, 15052 to 15054, 17074;
17479. Cammahala Bay, Ragay Gulf, Luzon.
March 11, 1909. Length 124 to 182 mm.

[1316.]

Urocampus rikuzenius Jordan and
Snyder, Proc. U. S. Nat. Mus., vol.
24, p. 10, fig. 7, 1901 (1902) (type
locality, Matsushima Bay). —
Snyder, Proc. U. S. Nat. Mus., vol.
42, p. 408, 1912 (type). — Jordan,
Tanaka, Snyder, Journ. College Sci.
Tokyo, vol. 33, p. 101, fig. 77, 1913
(reference).

to $1\frac{3}{4}$; ventral $1\frac{4}{5}$ to 2.

Dark brown, lower parts scarcely paler and fins blackish. Sides with many narrow blue longitudinal stripes extending out on fins and over head. Inside gill opening and mouth tinted with orange. Groove of maxillary pale.

1371m

Depth $26\frac{4}{5}$; head $11\frac{1}{2}$. Snout $2\frac{1}{8}$ in head from snout tip; eye $6\frac{1}{5}$, $4\frac{1}{5}$ in snout; chin with 2 slender barbels slightly longer than eye; occiput with low, 3-lobed, median keel; opercle with median ridge and upper submarginal parallel ridge.

Rings $11+59$; with transverse fine striae. Upper trunk keel continuous with upper caudal keel; median lateral trunk keel continuous with lower caudal keel; median ventral trunk keel high.

D. 16, on 5 caudal rings, origin on seventh caudal ring behind vent, fin height $4\frac{1}{2}$ in total head length; base with low ridge; anal minute; pectoral $4\frac{7}{8}$ in total head, rays 9; caudal minute, rudimentary. Vent about last third between gill opening and

dorsal origin.

Dark brown, white spots
along edges of each ring, more
conspicuous on tail, forming
cross bands. Dark streak along
median line of belly. Length
119 mm. (Jordan and Snyder).
China, Japan.

Analysis of Species

a¹ Opercle at least with basal beel anteriorly.

b¹ D. 14.

c¹ Rings 16 + 33 or 34.

c² Rings 16 + 47 or 48.

b² D. 17; rings 17 + 32

b³ D. 19 or 20; rings 16 + 30 or 31.

b⁴ D. 22; rings 16 + 36.

b⁵ D. 28³ to 27; rings 19 or 20 + 40 or 41.

d¹ R. 14-20 + 40-41

d² R. 14-15 + 37-40

a² Opercle without beel.

d¹ D. 16 or 17; rings 16 + 33 to 36.

galei.

Townsendi.

filum.

Philippinus.

belcheri.

erythraeus.

cristatus.

Urocampus carinirostris Castelnau

Urocampus carinirostris Castelnau,
 Proc. Zool. Acclimat. Soc. Victoria,
 vol. 1, p. 200, 1872 (type locality,
 Victoria). — Macleay, Proc. Linn.
 Soc. New South Wales, vol. 6, ^{pt. 1,} p.
 294, 1882 (Port Philip). — Ogilby,
 Cat. Fish. New South Wales, p. 60,
 1886 (reference). — McCulloch,
 Records Austral. Mus., vol. 7, no. 4,
 p. 317, pl. 90, fig. 2, August 30, 1909
 (far up Middle Harbor, Port
 Jackson). — Duncker, Fauna Sudw.
 Austral. Nielsen and Hartmeyer,
 vol. 2, ^{pt. 1,} p. 242, 1909; ^(Sydney; Port Phillip) Mitteil. Naturh.
 Mus. Hamburg, vol. 32, p. 100, 1914 (1915)
 (West and South Australia; types of
Urocampus guntheri and Urocampus
southwelli).

1247

Xerranus fasciatomaculatus Peters.

Xerranus fasciatomaculatus Peters,

Monatsb. Akad. Wiss. Berlin, 1865,

p. 111 (on 2 examples, said to be reported in Bleeker's fourth contribution to Japan, p. 8).

Depth $3\frac{1}{5}$ to $3\frac{1}{4}$; head $2\frac{1}{2}$ to $2\frac{3}{5}$, width $2\frac{1}{5}$ to $2\frac{2}{5}$. Snout $4\frac{1}{4}$ to $4\frac{4}{5}$ in head; eye $4\frac{1}{4}$ to $4\frac{1}{2}$, subequal with snout, greater than interorbital; maxillary reaches opposite hind eye edge, to hind pupil edge in young, expansion $1\frac{4}{5}$ to 2 in eye, length $2\frac{1}{8}$ to $2\frac{1}{6}$ in head; teeth fine, in rather narrow bands in jaws, biserial along sides of mandible with inner row longer and depressible; pair of small canines in front of each jaw, often double; narrow bands of fine teeth on vomer and palatines;

— McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 92, June 29, 1929
(reference).

long with a , reaches almost mouth angle, lower edge straight. Gill rakers 10 on lower branch of first arch.

Scales 57 to 61 in lateral line; 9 or 10 above, 19 to 21 below, 10 rows on cheek and preopercle limb scaly.

D. XII, 10, fourth spine longest; A. III, 8, second and third spines subequal.

Rose red, deeper and more crimson tinge above. Scales marked with golden and bluish reflections. Lower edge of orbit and hind opercle edge bluish, dark in preserved specimens. Usually dark spot in pectoral axil and another at base of last dorsal ray. Fins rosy. Reaches 600 mm. (Barnard.)

South Africa, Natal.

Urocampus coelorhynchus Günther,
Journ. Mus. Godeffroy, vol. 1,
pp. 103, 175, 1873 (type locality,
Sydney); Rep. Voy. Challenger,
vol. 1, pt. 6, p. 30, 1880 (Port Jackson).

Urocampus güntneri Duncker, Fauna
Sudw. Austral. Michaelson and
Hartmeyer, vol. 2, ^{pt. 1} pp. ²⁴¹ 242, figs. 1-2,
1909 (type locality, ^{Useless Inlet,} Shark's Bay).

Urocampus southwelli Duncker,
Spolia Zeylanica, vol. 7, ^{pt. 25} p. 30, pl. f.
^{September} b-c, 1910 (type locality,
Marichchukshaddi Bay, Ceylon, in
2 $\frac{1}{4}$ fathoms).
— McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 21, June 29, 1929 (reference).

12727 and 12728. Capulaan Bay,
Pagbilao, ^{China} Island, vicinity Maitindague
Island. February 24, 1909. Length
157 to 182 mm.

5503, 8258, 15881 to 15885. Catbalogan,
Samar Island. April 14, 1908. Length
88 to 105 mm.

9326, 8575, 8576, 9322 to 9329, 1305
and 13006. Catbalogan. April 15, 1908.
Length 80 to 177 mm.

6925, 6927, 6929, 6930. Catbalogan.
April 16, 1908. Length 131 to 190 mm.

13179. Catangian Bay, Masbate Island.
April 17, 1908. Length 133 mm.

16190, 22805, 22806. Catangian Bay.
April 18, 1908. Length 152 to 178 mm.

7572 and 7671. Cebu market. April
4-6, 1908. Length 151 to 175 mm.

10925 to 10928. Endeavor Strait, Palawan.
December 23, 1908. Length 126 to 165 mm.

Depth $38\frac{1}{2}$; head $9\frac{2}{5}$ to $10\frac{4}{5}$.
 Snout $2\frac{1}{5}$ to $2\frac{1}{4}$ in head from
 snout tip; eye 7 to $7\frac{1}{2}$, 3 to $3\frac{1}{5}$ in
 snout; opercle beveled anterior
 $\frac{2}{3}$ its length.

Rings $8 + 49$ or 50 ; body beels
 very indistinct. No cutaneous
 appendages. Eggs comparatively large,
 biserial, 8 to 10, arranged in
 7 anterior rings of caudal.

D. 14, on 5 caudal rings, origin
 of fin beginning on eighth caudal
 ring, fin height $3\frac{1}{5}$ in total head;
 no anal; caudal rays 10, fin $5\frac{1}{2}$
 in head; pectoral $3\frac{2}{5}$, rays 8 to
 10. Vent midway between dorsal
 origin and middle of opercle.

Uniform yellowish brown.

Length not given.

(Blencher.)

Western Australia, South
 Australia, Victoria, New South Wales.

1377

Genus Choeroichthys Kaup

Choeroichthys Kaup, Cat. Lophobr.
Fish Brit. Mus., p. 55, 1856.
(Type Choeroichthys valencienni
Kaup, monotypic.)

Body small, short, dorsally and ventrally arched. Snout rather short, slightly shorter or longer than rest of head. Opercle with complete longitudinal keel and radiating ridges or lines, especially in lower half of opercle. Rings of tail more numerous than those of trunk. Upper keels of trunk and tail continuous, lower keels of trunk and tail discontinuous, median keels of trunk and lower keels of tail continuous. Intermedial shields (scutella) present, as also

preopercular and 2 opercular shields.
Edges of shields finely serrated or
granulated, smooth on head.
~~Rings of tail more numerous~~
Dorsal with 21 to 35 rays, above 5
to 9 rings, 1 or 2 of which caudal.
Anal postmedian. Caudal small.
No pectoral. Eggs large, isolated
in open cells in abdominal
skin of male. Laterally protected
by ventrally diverging plates,
which anteriorly and posteriorly
furnished with converging cutaneous
folds, temporarily adnate in
median line to enclose eggs.

Indo Pacific.

Analysis of Species

- a.¹ Rings 19 + 21 to 24; D. on 5 to 7 trunk
and 2 caudal rings. sculptus.
- a.² Rings 14 or 15 + 18 or 19; D. on 4
trunk and 1 caudal ring. brachysoma.

Choeroichthys sculptus (Günther)

Doryichthys sculptus Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 185,
1870 (type locality, Fiji). —

Boulenger, Ann. Mag. Nat. Hist.,
ser. 6, vol. 20, p. 374, 1897 (Rotuma).

— Günther, Journ. Mus. Godeffroy,
vol. 9, p. 433, pl. 167, figs. a-a',
1910 (type; Rotuma; Society Islands).

Microphis sculptus Jordan and
Seale, Bull. Bur. Fisher., vol. 25,
p. 214, 1905 (1906) (reference).

Choeroichthys sculptus Duncker,
Mitteil. Naturh. Mus. Hamburg,

— Weber and Beaufort, Fish. Indo
 Austral. Archip., vol. 4, p. 61, fig. 26,
↓ 1922 (Samau).

→ — Fowler, Mem. Bishop Mus., vol.
10, p. 110, 1928 (Society Islands).

Choeroichthys sculptus (Günther)
Doryichthys sculptus Günther,
 Cat. Fish. Brit. Mus., vol. 8, p. 185,
 1870 (type locality, Fiji). —

Boulenger, Ann. Mag. Nat. Hist.,
 ser. 6, vol. 20, p. 374, 1897 (Rotuma).

— Günther, Journ. Mus. Godeffroy,
 vol. 9, p. 433, pl. 167, figs. a-a',
 1910 (type; Rotuma; Society Islands).

Microphis sculptus Jordan and
Seale, Bull. Bur. Fisher., vol. 25,
 p. 214, 1905 (1906) (reference).

Choeroichthys sculptus Duncker,
 Mitteil. Naturh. Mus. Hamburg,
 vol. 32, p. 59, 1914 (1915) (East Africa,
 Chessinia, Philippines, Japan, New
 Hebrides, Fiji, Society Islands).

→ — Fowler, Mem. Bishop Mus., vol.
 10, p. 110, 1928 (Society Islands).

g.¹ Each scale with dark spot forming longitudinal series. duoy.

g.² Brown marblings, cloudings, some grouped as vertical bands; numerous indistinct longitudinal brown or blackish lines on body. Cuvier.

Subgenus Pentapodus ^{Cuvier 20} ^{nom. n.} duoy and Gaimard
Predorsal scales extend forward in interorbital.

Doryrhamphus macgregori Jordan
and Richardson, Bull. Bur.
Fisher., vol. 27, p. 246, fig. 7, 1907
(1908) (type locality, Calayan,
Philippines).

Microphis ocellatus Snyder,
Proc. U. S. Nat. Mus., vol. 36, p. 598,
1909 (type locality, Naha, Okinawa,
Riu Kiu); vol. 42, p. 408, 1912
(Tanegashima), p. 495, pl. 63, fig.
1 (Naha).

Caudal³
porous
only

c.³ Two golden longitudinal bands, upper narrower above lateral line, lower broad and axial from snout tip to end of median caudal rays; each caudal lobe ends in long filament. nemurus

c.⁴ Dorsal longitudinal whitish bands, medial widest; small white blotch usually below soft dorsal rays. lineatus

c.⁵ Indistinct blackish oblique band from nape of neck to opercle point; second similar before dorsal, ending below lateral line in large rounded spot; few blackish clouded spots along sides. nubilus

b.¹ Oblique dark bar across pectoral base from fin origin; 3 whitish longitudinal bands from eye, lowest axial to caudal base. caninus

c.⁶ Blue line from eye along upper sides, crossing lateral line on caudal peduncle; small round black spot at caudal base medially. setosus

a. Psilopentapodus, new subgenus. Predorsal scales extend forward only far as eye.

Body rather short, depth at least equals postorbital; ^{head half of trunk.} Snout not quite half of head, slightly turned upwards; opercle with numerous prominent radiating ridges.

Rings 20 + 24, edges of each prominently spinous behind. Lateral keel uninterrupted, passing into lower edge of tail.

D. 30, on 5 trunk rings and 2 caudal rings; vent behind middle of fin or midway between end of gill cover and caudal base; caudal very short.

Five distant pairs of yellow spots on back. In male lateral line accompanied by 2 series of yellow dots. Length 52 mm.

East Africa, ^{East Indies,} Philippines, Riu Kiu, Japan, Melanesia, Polynesia. (Günther.)

Choerichthys valencienni Kaup

Choerichthys valencienni Kaup,
Cat. Lophobr. Fish Brit. Mus.,
p. 55, pl. 3, fig. 6, 1856 (type
locality, Bourbon Island). ~~non~~

Duncker, Faun. Südwest. Austral.

Michaelson and Hartmeyer, vol.
2, ^{pt. 1} p. 235, 1909 (Cape York; Port Moller);
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 60, 1914 (1915) (Hawaii;
Cape York).

☞ Choerichthys valencienni

Doryichthys valencienni Günther,

Cat. Fish Brit. Mus., vol. 8, p. 187,
1870 (compiled). — Bleeker, Verh.

Kon. Akad. Wet. Amsterdam,
vol. 18, p. 16, 1878 (1879).

1384a

Tail slightly shorter than trunk.
Snout about equals rest of head, beels smooth.
Rings 14 or 15 + 18 or 19, with
reticulated striae, edges conspicuous,
very minutely serrated. Intermedial
shield (scutella) without beels.
Opercle with rough longitudinal
median beel above and below
numerous diverging lines.

D. 20 to 24, on 4 trunk beels
and 1 caudal; A. 4; caudal rays 9
to 11; pectoral 20 to 23.

Brown. On each side of
trunk 2 series of black spots.
Black band from point of
snout through eye to opercle.

Length nearly 60 mm.

(Weber and Beaufort)

Bourbon, Mauritius, East Indies,
Queensland.

Microphis dactylophorus Duméril,
Hist. Nat. Poiss., vol. 2, p. 592, 1870.
(New Caledonia).

Doryichthys dactylophorus Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 186,
1870

Journ. Mus. Godeffroy, vol. 9, pt. 17,
p. 433, 1910 (Pelew Islands).

Acanthognathus dactylophorus
Duncker, Mitteil. Naturh. Mus. Hamburg,
vol. 29, p. 228, 1912 ();
vol. 32, p. 41, 1915 ().

Acanthognathus dactylophorus Duncker
and Moher, Mitteil. Naturh. Mus.
Hamburg, vol. 41, p. 12, pl. 2, fig. 1,
1925 (Friedrich Wilhelm Harbor, New Guinea).
(Weber and Beaufort, Fishes Indo Austral.
Archip., vol. 4, p. 42, fig. 20, 1922 (Bleeker's
material)).

? Syngnathus brachysoma Bleeker,
Nat. Tijds. Ned. Indië, vol. 8, p.
(307) 327, 1855 (type locality,
Batoe Island).

Choeroichthys brachysoma Bleeker,
Act. Soc. Sci. Ind. Néerl., (Sumatra)
vol. 8, p. 72, 1859 (Batu). —
Duméril, Hist. Nat. Poiss., vol. 2,
p. 588, 1870 (Mauritius). — Mc

— Weber and Beaufort, Fish. Indo
Austral. Archip., vol. 4, p. 62, fig.
27, 1922 (Bleeker's material).

Doryichthys serialis Günther,
Rep. Voy. Hilbert, Zool., p. 30, pl. 3,
fig. B, 1884 (type locality, Port
Molle, Queensland).

? Syngnathus brachysoma Bleeker,
Nat. Tijds. Ned. Indië, vol. 8, p.
(307) 327, 1855 (type locality,
Batoe Island).

Choeroichthys brachysoma Bleeker,
Act. Soc. Sci. Ind. Néerl., (Sumatra)
vol. 8, p. 72, 1859 (Batu). —
Duméril, Hist. Nat. Poiss., vol. 2,
p. 588, 1870 (Mauritius). — Mc
Culloch and ^{hitley}Watt, Mem. Queensland
Mus., vol. 8, pt. 2, p. 137, July 7,
1925 (reference).

Doryichthys serialis Günther,
Rep. Voy. Hilbert, Zool., p. 30, pl. 3,
fig. B, 1884 (type locality, Port
Molle, Queensland).

13678. Manila market. June 24, 1908.
Length 138 mm.

9707. Manila market. April 28, 1908.
Length 140 mm.

7291. ^{an} Mis_{an}lay, Mindoro. June 4, 1908.
Length 160 mm.

8581. Matnog Bay. May 31, 1909.
Length 328 mm.

12746. North end of Endeavor Strait,
north west coast Palawan Island.
December 22, 1908. Length 108 mm.

13886. Observatory Island. December 19,
1908. Length 169 mm.

10736. Port Ciego, Balabac Island.
January 3, 1909. Length 156 mm.

8446, 21634. Port Jamelo, Luzon.
July 13, 1908. Length 62 to 84 mm.

One example. Gubat Bay, Luzon,
in tide pools. June 23, 1909. Length
46 mm.

One example. Kaspit, Mindanao.
August 1, 1909. Length 33 mm.

One example. San Pascual. March
8, 1909. Length 44 mm.

1385

Genus Festucalex Whitley

Festucalex Whitley, ~~Rec.~~ ^{Zoologist} Austral. ~~Mus.~~,
vol. 6, pt. 4, p. 312, February 13, 1931.
(Type Syngnathus cinctus Ramsay,
orthotypic.)

Campichthys Whitley, ~~Rec.~~ ^{Zoologist} Austral.
~~Mus.~~, vol. 6, pt. 4, p. 313, February 13,
1931. (Type Ichthyocampus tryoni
Ogilby, monotypic.)

Snout nearly long as rest of head.
Opercle with short beel anteriorly.
Body rings less than 20., median
beels of trunk rectilinear, not
joined to others, ending on second or
third tail ring. No ~~hind~~ tooth like
spines on hind tail rings. Ventral
surface of trunk flat. Dorsal,
Upper and lower beels of trunk
continuous with those of tail.

anal and caudal present. Vent well

premedian. Brood pouch subcaudal, formed by broad lateral flaps extending from behind rudimentary anal fin for about 18 tail rings and reinforced by ribs extending from edges of 2 rows of subcaudal pits which hold large eggs.

Analysis of Species

- a.¹ Trunk rings 17.
b.¹ D. 23; rings 17 + 40. cincta.
b.² D. 18?; rings 17 + 36. tryoni.
a.² Trunk rings 13 or 14, caudal rings 46 or 47, D. 14. runa.

Festucalex cinctus (Ramsay)

Syngnathus cinctus Ramsay, Proc.
Linn. Soc. New South Wales, vol.
7, pt. 1, p. 111, May 23, 1882 (type
locality, Port Jackson, New South
Wales). — Macleay, in 17 fathoms,

Proc. Linn. Soc. New South Wales,
vol. , p. 60, 1884 (compiled). —
Ogilby, Cat. Fish. Australia, p. 60,
1886 (compiled); Ann. Queensland
Mus., no. 9, p. , 1908 (Moreton Bay).

6623. East side Verde Island.

July 22, 1908. Length 282 mm.

18833. Endeavor Strait, Palawan.

December 22, 1908. Length 198 mm.

8993. Subat Bay. June 23, 1909.

Length 274 mm.

10825. Pangao Point, Luzon. June 24, 1909.

Length 203 mm.

10878. Lunibones Cove, Manila Bay.

February 8, 1909. Length 221 mm.

• 6033 and 6034. Little Santa Cruz Island. May 28, 1908. Length 274 to 317 mm.

11360. Maagnas, Lagonoy Gulf, Luzon.

June 17, 1909. Length 194 mm.

9202. Mahinog, Camiguin Island.

August 3, 1909. Length 280 mm.

8516. Makesi Island, Palawan.

April 5, 1909. Length 260 mm.

16923. Makesi Island. April 5, 1909.

Length 218 mm.

Ichthyocampus cinctus Duncker,
Fauna Südwest Austral.,
Michaelson and Hartmeyer, vol.
2, p. 240, 1909, ^(Port Jackson) Mitteil. Naturh.
Mus. Hamburg, vol. 32, p. 97,
1914 (1915) (compiled). — McCulloch
and Whitley, Mem. Queensland
Mus., vol. 8, pt. 2, p. 137, July 7,
1925 (reference). — McCulloch,

Mem. Austral. Mus., vol. 5, pt. 1,
p. 89, June 29, 1929 (reference).

Ichthyocampus cinctus McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 89, June 29, 1929 (reference).

5706, 14170, 20769, 21005. Pujada Bay,
Mindanao. May 10-15, 1908. Length
113 to 153 mm.

18972 and 21355. Quinalasag Island,
Masamat Bay, east coast Luzon. June
12, 1909. Length 116 to 120 mm.

13275, 13406 to 13408. Rapu Rapu Island,
east coast Luzon. June 22, 1909. Length
92 to 140 mm. 11 examples.

6401. Rasa Island, Mantaguin Bay,
vicinity eastern Palawan. April 1, 1909.
Length 123 mm.

17486. Refugio Island, Pasacao, Luzon.
March 9, 1909. Length 123 mm.

19922 and 19923. Romblon Harbor,
Romblon. March 25, 1908. Length 100 to 121 mm.
[450; 451].

11892, 18157, 18158. San Miguel Harbor,
Ticao Island. April 21, 1908. Length 110 to
127 mm.

Head $8\frac{1}{2}$ to $8\frac{3}{4}$ in total; tail $1\frac{2}{3}$ in head and trunk. small tubercle on orbital ridge, no filament over eye; opercle without ridge; deep narrow groove between orbital ridges, narrow, short, sharp ridge in front on forehead behind orbits on head, no extending to neck ring. Snout long as head from eye center, $1\frac{1}{2}$ times orbit;

Rings $17 + 40$. Each dorsal and ventral keel on last 2 osseous caudal rings end in 3 or 4 sharp spiniform tubercles or serrations. Pouch on 14 caudal rings; dilated on outer edges, lateral ridge ending abruptly on third caudal ring, height of dorsal rings equals width on ventral surface, width across dorsal surface about $1\frac{1}{4}$ less.

D. 23, 3 on 5 first caudal rings; anal distinct.

In young female lateral keels on serrated on 2 last osseous rings as in male.

Color light gray to dark
olive brown, body with
blackish bands, caudal portion
with spots. Round opercle,
except on upper border white
line margined with black.
Few white streaks on throat.
Six transverse white marks on
lower surface of snout. Length
not given. (Ramsay.)

New South Wales, Queensland.

Gill rakers 7+10, lanceolate.

Scales 63 in lateral line to caudal base and 7 more on latter; 9 above, 18 below, 25 predorsal; 6 rows on cheek to preopercle ridge. Scales with 9 to 12 basal radiating striae; 85 to 92 apical denticles, with 6 or 7 transverse rows of basal elements, circuli fine.

D. XII, 15, I, fifth spine $2\frac{2}{5}$ in head, first ray $2\frac{7}{8}$; A. III, 13, I, second spine 3, first ray 3; caudal 1, forked; ventral $1\frac{1}{3}$; pectoral 3? in combined head and body to caudal base.

Brown; with broad blackish saddle on upper side of caudal peduncle. Pectoral axil blackish and small blackish spot at fin origin. Outer portions of ventrals and soft vertical fins with dusky gray.

Festucalex tryoni (Agilby) 1391

Ichthyocampus tryoni Agilby, Rec.
Austral. Mus., vol. 1, p. 56, 1890
(type locality, Moreton Bay;
Queensland, East Australia). —

Duncker, Faun. Südwest Austral.,
Michaelson and Hartmeyer, vol. 2, ^{pt. 1}
p. 240, 1909, ^(Moreton Bay) Mitteil. Naturh. Mus.
Hamburg, vol. 32, p. 98, 1914 (1915)
(copied). — McCulloch and Whitley,
Mem. Queensland Mus., vol. 8, pt. 2,
p. 137, July 7, 1925 (reference). —
McCulloch, Mem. Austral. Mus., vol.
5, pt. 1, p. 89, June 29, 1929 (reference).

Festucalex (Campichthys) tryoni
Whitley, Rec. Austral. Mus., vol. 6,
pt. 4, p. 313, February 13, 1931
(type).

band of fine teeth on vomer and each palatine; interorbital 6, convex; hind preopercle edge minutely dentate, 2 large serrae at angle; median opercular spine little nearer lower and upper most advanced. Gill rakers 10 + 21, lanceolate, greatly longer than gill filaments and slightly longer than eye.

Scales 104 in lateral line to caudal base and 10? more on latter; tubes 53 in lateral line to caudal base and 3 more on latter; 20 scales above lateral line, 33 below, 68 predorsal, 36 rows across cheeks; body scales all with numerous fine or small auxiliary basal scales; fins all more or less finely scaled basally; maxillary with upper

Head $10\frac{1}{6}$, $2\frac{1}{2}$ to vent; head and trunk $2\frac{4}{5}$ in total. Body compressed, much deeper than broad. Snout $2\frac{2}{3}$ in head, very short, $\frac{5}{6}$ of postorbital, turned upwards at tip, hind half with high sharp arcuate ridge bifurcated behind, divergent branches meeting suprascapular ridges which moderate; low curved opercular ridge; interorbital with low median ridge, continuous with rather indistinct nuchal ridge. Rings $17+36$; all keels acute; upper strong; lateral trunk keel straight, ceasing on second and third caudal ring; ventral trunk keel well developed. Brood pouch on 16 rings, rather more than $\frac{2}{5}$ of tail.

with bronze reflections. Fins
uniform slate brown. Length 216
mm. (McCulloch.)
New South Wales. Reaches 610 mm.

1393

D. 18?, on 5 anterior caudal
rings; A. ?; caudal rays 8;
pectoral 8.

Head, back and sides brown,
faintly mottled with lighter.
Under surface pale yellowish
brown, with exception of black
marsupial region. Length 70 mm.
(Ogilby.)

Queensland.

edge entire.

Scales 51 in lateral line to caudal base; 8 above, 16 below; predorsal scales forward opposite hind eye edge; cheeks with irregular minute scales to preopercle ridge, flange broadly naked; opercle, subopercle, interopercle and muzzle naked, also all upper front of head.

D. XIII, 14, last spine $2\frac{1}{8}$ in head, second ray $1\frac{1}{2}$; A. III, 11, third spine $2\frac{2}{3}$, third ray $1\frac{1}{4}$; least depth of caudal peduncle $1\frac{4}{5}$; pectoral $1\frac{1}{10}$; ventral $1\frac{1}{4}$; caudal $3\frac{1}{10}$ in combined head and body to caudal base.

Uniform dark bluish brown, each scale with lighter blue spot and well defined bronze border. Under surface of body paler,

Festucalex runa (Whitley)

1394

Festucalex (Campichthys) runa
Whitley, Rec. Austral. Mus., vol.
6, pt. 4, p. 313, February 13, 1931
(on McCulloch).

Ichthyocampus filum (not Günther)
McCulloch, Rec. Austral. Mus.,
vol. 7, p. 318, pl. 90, fig. 1, 1909
(type locality, Sydney); Mem. Austral.
Mus., vol. 5, pt. 1, p. 89, June 29, 1929
(reference).

half scale, in 16 transverse rows.

D. XI, 17, I, third spine $3\frac{1}{8}$ in total head length, first ray 3;
A. III, 8, I, third spine $4\frac{1}{5}$, fifth ray $1\frac{4}{5}$; caudal $1\frac{3}{5}$, slightly emarginate and truncate as expanded; least depth of caudal peduncle $3\frac{1}{8}$; pectoral 2; ventral $2\frac{1}{8}$.

Brown generally, marked with very numerous close set darker brown round spots, all greater than pale interspaces. All fins spotted like body.

Red Sea, Arabia, Persian Gulf, Zanzibar, Mozambique, Madagascar, Seychelles, India, Ceylon, East Indies, Philippines, Formosa, China, Japan. We admit this species.

Depth $22\frac{1}{4}$; head 12. Snout 3 in head, short, turned upward; eye $4\frac{3}{4}$, 2 in snout; small tubercle over eye, another on occiput, besides several minute ones scattered over head above.

Rings 13 or 14 + 46 or 47, each above and below of trunk rings on either side with minute tubercle at hind end. Row of minute tentacles on mid-line of body, others on dorsal caudal peduncle and on sides of egg pouch.

D. 14, on 2 trunk and 2 caudal rings; egg pouch of male equals trunk in length.

Usually with broad dark cross bands on sides. Chain-like pattern of lighter markings on back. In life more brilliant, some bright blue along sides, with broad dark brown vertical bars, more or less in pairs. Back pure white or variegated with lighter and darker chain like circles. Opercle scarlet. Others with blue ground more or less broken by yellow and pink areas. Type (McCulloch.)
New South Wales. not given.

Genus Lissocampus Waite and Hale

Lissocampus Waite and Hale, Rec.
Austral. Mus., vol. 1, no. 4, p. 306,
January 29, 1921. (Type Lissocampus
candialis Waite and Hale,
monotypic.)

Body with long tapering tail,
trunk rather short. Head
small. Snout obtuse. Eye
advanced, about first third in
head. No beels, angles scarcely
defined, body smooth. Dorsal
short, small. Anal minute.
Pectorals present. Caudal minute.

1397

Lisocampus caudalis Waite and Hale

Lisocampus caudalis Waite and Hale,
Rec. Austral. Mus., vol. 1, no. 4, p.
306, fig. 46, January 29, 1921 (type
locality, Kangaroo Island, South
Australia). — McCulloch, Mem.
Austral. Mus., vol. 5, pt. 1, p. 91,
June 29, 1929 (reference).

Depth $36\frac{1}{3}$; head $15\frac{1}{2}$, $2\frac{1}{2}$ in
trunk; trunk $4\frac{4}{5}$ in tail, which
 $1\frac{1}{3}$ in total. Snout $3\frac{1}{10}$ in
head, compressed, with obtuse
elevated crest ending on interorbital,
ridge on each side from snout
tip to nostril; eye $6\frac{1}{5}$ in head,
2 in snout; occipital and
nuchal ridges feeble.

depth $2\frac{3}{4}$ to $2\frac{7}{8}$; head $2\frac{3}{5}$ to $2\frac{2}{3}$,
width $2\frac{1}{4}$ to $2\frac{1}{2}$. Snout $3\frac{1}{3}$ to $4\frac{1}{5}$ in
head from snout tip; eye $4\frac{1}{5}$ to $6\frac{2}{3}$,
1 to $1\frac{4}{5}$ in snout, greater than
interorbital to $1\frac{2}{5}$ in interorbital;
maxillary reaches $\frac{3}{4}$ to or opposite
hind eye edge, expansion $1\frac{1}{3}$ to $1\frac{3}{5}$
in eye, length 2 to $2\frac{1}{8}$ in head from
snout tip; teeth in narrow bands,
biserial along sides of mandible;
pair of small canines in front of
each jaw; narrow band of fine
teeth on vomer and each palatine;
interorbital $5\frac{1}{5}$ in head from snout
tip, convex; hind preopercle edge
minutely denticulate and 3
slightly larger teeth at angle;
median opercular spine nearer
lower and upper most advanced.
Gill rakers $14+20$, lanceolate, little

Rings $16 + 60$. Head and body smooth, latter deeper than wide, without ridges and angles smooth. rounded; back convex, ventral surface V-shaped but without keel.

D. 11, begins on hind edge of last body ring, on 1 trunk and 2 caudal keels, on elevation, height equals fin base, which long as snout; caudal rays 10, little longer than pectoral; pectoral rays 5?

Head brown, finely marked with white. Body light brown, with 5 large white spots on back between nape and dorsal origin. Similar but less distinct spots on caudal. Dark brown bands encircle body about every fourth ring throughout length. On trunk lighter interspaces mottled with white. Length 97 mm.
(Waite and Hale.)
South Australia.

Genus Hannocampus GüntherHannocampus Günther, Cat. Fish.

Brit. Mus., vol. 8, p. 98, 1870.

(Type Hannocampus subosseus
Günther, monotypic.)

Body rather short. Tail equal or longer than head and trunk. Head short, without ridges, finely granulated. Snout extremely short, about equals eye, thick. Opercle without keel. Shields with transverse lines, edges obsolete, intermedial shields (scutella) large, oval. Upper and lower? trunk and tail keels continuous, median trunk keels rectilinear, end below dorsal. Dorsal short. Caudal very small. No pectoral. Egg pouch on tail formed by cutaneous folds from lower tail edges, with or without osseous plates.

Indo Australian region and the Bahamas.

Analysis of Species

a.¹ d. 10 or 11.

b.¹ Rings 19 + 50.

ruber.

b.² Rings 16 + 35.

rubosceus.

a.² d. 16 or 17; rings 16 + 32. weberi.

1401

Lamnolaima ruber Ramsay and
Ogilby

Lamnolaima ruber Ramsay and
Ogilby, Proc. Linn. Soc. New South
Wales, vol. 10^{pt. 4,}, pp. 757, ^{760,} 1886 (type
locality, Port Jackson, South
Australia). — Ogilby, Cat. Fish.
New South Wales, p. 60, 1886
(Port Jackson). — Duncker, Fauna
Südwest. Austral. Michaelsen and
Hartmeyer, vol. 2^{pt. 1,}, p. 243, 1909^(Shark Reef at Port Jackson);
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 99, 1914 (1915) (South
Australia, Port Jackson at
Sydney, Shark Reef). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1, p.
91, June 29, 1929 (reference).

Java, Amboyna, Duke of York Island,
 Solomons, Aneiteum, Samoa, Fiji,
 Micronesia, East Australia, Madagascar,
 Torres Straits, Seychelles, Moluccas).
 — Steindachner, Abhandl. Senckenberg.
 Gesell., Naturf. vol. 25, 1900, p. 414
 (Batjan, Ternate). — Jordan and Snyder,
 Annot. Zool. Japon., vol. 3, 1901, p. 75
 (Kin Kiu). — Regan, Journ. Bombay
 Nat. Hist. Soc., vol. 16, no. 2, 1905, p. 329
 (Persian Gulf), p. 331 (Muscat). —
Jordan and Seale, Bull. Bur. Fisher.,
 vol. 25, 1905 (1906), p. 258 (Upia). —
Evermann and Seale, Bull. Bur. Fisher.,
 vol. 26, 1906 (1907), p. 75 (Bacon). — Regan,
 Journ. Linn. Soc. London, vol. 12, ser. 2,
 1907, p. 222 (Maldives). — Seale and Bean,
 Proc. U. S. Nat. Mus., vol. 33, 1907, p. 242
 (Gamboanga). — Gilchrist and Thompson,
 Ann. South Afr. Mus., vol. 6, 1908-10, p.

1402

Head and trunk $\frac{4}{9}$ of tail;
head $4\frac{1}{2}$ to vent. Snout very
short, $2\frac{1}{2}$ in head, lower side
broad and convex as upper,
bears sub-gular spine.

Rings 19 + 50; almost round,
keels obsolete.

D. 11; caudal 6, small;
vent little before dorsal fin.

When fresh red, with
minute white spots. Length 115
mm. (Ramsay and Ogilby.)

New South Wales.

China, Corea, Japan).

Pagrus ruber (Löferlein) Steindachner and
Löferlein, Denkschr. Akad. Wiss. Wien,
math.-naturw. Classe, vol. 48, pt. 1, 1884, p.
20. Tokyo.

Depth $2\frac{1}{5}$ to $2\frac{2}{5}$; head $2\frac{2}{5}$ to 3, width 2.
Snout $2\frac{3}{5}$ to $3\frac{1}{10}$ in head; eye 3 to 4,
 $1\frac{1}{8}$ to $1\frac{1}{2}$ in snout, greater than interorbital
in young to $1\frac{1}{4}$ with age; maxillary reaches
opposite front eye edge, expansion $2\frac{2}{5}$ to
3 in eye, length $2\frac{7}{8}$ to 3 in head; 4
front conic canines above, 6 below, variable,
often outermost slightly enlarged; above
followed by 4 or 5 shorter canines each
side and below by 5 or 6 shorter canines
each side; jaws posteriorly each side
with small biserial molars, of which 2
or 3 inner largest and all around
anteriorly inside band of small

1403

Lamnolaimus subosseus Günther

Lamnolaimus subosseus Günther,
Cat. Fish. Brit. Mus., vol. 8, p.
178, 1870 (type locality, Freycinet's
Harbour, Western Australia). —
Macleay, Proc. Linn. Soc. New
South Wales, vol. 6, ^{pt. 1,} p. 293, 1882
(compiled). — Duncker, Fauna
Südw. Austral. Michaelsen and
Hartmeyer, vol. 2, p. 243, 1909; ^(Shark's Bay)
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 98, 1914 (1915) (Shark's
Bay and Freycinet's Harbor). —
McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 91, June 29, 1929
(reference).

Holocentrus merra Lacépède, Hist. nat. Poiss., vol. 4, 1802, pp. 343, 384 (Japan).
Xeromus merra Lay and Bennett, Zool. Beechey's Voy., Fish, 1839, p. 52 (Loo Choo). —
Valenciennes, Hist. nat. Poiss., vol. 2, 1829, p. 325 (Japan, East Indies, Red Sea, Waigiu, Timor, Mauritius, Bourbon, Seychelles, Borabora, Oualah). — Peters, Arch. Naturg., 1855, p. 235 (Mozambique). —
Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 23. — Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 435 (Mauritius). —
Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, 1878, p. (349) 365 (Port Jackson). —
Fowler, Proc. Acad. Nat. Sci. Phila., 1907, p. 255 (Thornton Island and Apia, Samoa); 1925, p. 222 (Natal). — Fowler and Ball, Bishop Mus. Bull., no. 26, 1925, p. 14 (Wake Island). — Fowler, Bishop Mus. Bull., no. 38, 1927, p. 14 (Fanning, Christmas,

Head and trunk 2 in tail;
head $2\frac{2}{3}$ to vent. Snout extremely
short, not longer than deep, $3\frac{1}{2}$
in head; bones on lower side of
head well ossified, surface broad
and convex as upper; entire
head finely granulated, without
ridges.

Rings 16 + 35; keels obsolete,
body slightly compressed.

D. 10; caudal very small;
vent opposite fore part of dorsal
fin. Brood pouch long as trunk,
formed by dilated lower caudal
edges.

Brown, finely marbled with
darker and lighter. Body and
tail with narrow, irregular bluish
cross bands. Length 90 mm. (Günther.)

Western Australia.

$2\frac{4}{5}$ to 3; ventral $1\frac{1}{4}$ to $1\frac{2}{5}$; pectoral $2\frac{4}{5}$ to $2\frac{7}{8}$ in combined head and body to caudal base.

Back dull brown, sides and lower surfaces silvery white. Iris white. Fins all light or pale brownish. On dorsals 2 longitudinal slightly dark bands than body color.

China, Japan, Formosa, Riu Kiu, Korea. Also reported from the Philippines by Elera, though of this I have no material to confirm him.

26252 U.S.N.M. Japan. 1878. Prof. E. S. Morse. Length 75 to 198 mm. 9 examples.

75492 U.S.N.M. Utsunomiya, Japan. Jordan and Snyder. Length 220 to 222 mm. 2 examples.

Ramnocampus weberi Duncker

Ramnocampus weberi Duncker,
Mittheil. Naturh. Mus. Hamburg,
vol. 32, p. 99, 1914 (1915) (type
locality, Sumba Island, Malé
Kuba Bay, -on the reef). — ✓

Weber and Beaufort, Fish. Indo-
Austral. Archip., vol. 4, p. 95, fig.
39, 1922 (type).

(South west Sumba Island).

Hannocampus weberi Duncker

Hannocampus weberi Duncker,
Mittheil. Naturh. Mus. Hamburg,
vol. 32, p. 99, 1914 (1915) (type
locality, Sumba Island, Malé
Kuba Bay, on the reef). — ✓

Hannocampus subosseus (not
Günther) Weber, Siboga Exped.,
vol. 57, Fische, p. 115, fig. 41, 1913
(South west Sumba Island).

(South

vol. 54

number

Manos

Kula 130

Known only from the East Indies,
where having 13 examples 160 to
50 mm. long, though our largest

22 (Durban). — Snyder, Proc. U. S.
 Nat. Mus., vol. 42, 1912, p. 497 (Okinawa).
~~Weber~~, Siboga Exped., vol. ⁵⁷ ~~65~~, 1913, p. 204
 (Aeba, Sava; Lamuluma and Kabala-
 dua; Borneo Bank; Muaras Reef,
 Celebes Sea; Sanguisiapo, Sulu Archipelago;
 Karkaralong Island; Salibabu; Salomaki;
 Salayer; Binongka; Lucipara; Hala-hia;
 Banda; Hoch Key; Roma; east point
 Timor; Pepela Bay; Solor). — Seale,
 Philippine Journ. Sci., vol. 9, 1914, p. 65
 (Hong Kong). — Fowler and Bean, Proc.
 U. S. Nat. Mus., vol. 62, 1922, p. 28
 (Zamboanga). — Fowler, Proc. Acad. Nat.
 Sci. Phila., 1923, p. 39 (Madagascar);
 Bishop Mus. Bull., no. 22, 1925, p. 9
 (Guam), p. 33 (Samoa). — Barnard,
 Ann. South Afr. Mus., vol. 21, 1927, p. 483
 (Natal coast).

Depth $19\frac{2}{5}$; head $9\frac{7}{8}$. Snout $3\frac{1}{2}$ in head; eye 6, $1\frac{3}{4}$ in snout; snout above with feeble median ridge, forks before eyes - and each branch continued over eye to outer upper border; opercle without keel, surface minutely rugose.

Rings $16 + 32$; with few conspicuous transverse lines, edges rounded. Intermedial shields very large, oval. Median trunk keel on side ends on last trunk ring; lower trunk and caudal keels continuous.

D. 16 or 17, on 1 trunk and 4 caudal rings; caudal $3\frac{1}{3}$ in head, truncate.

Light brown, with indistinct irregular longitudinal blackish bands. Length 57 mm.

(Weber and Beaufort)
East Indies. One specimen known.

Genus Entelurus Dumeril

Entelurus Dumeril, Hist. Nat. Poiss., vol. 2, p. 605, 1870. (Type Syngnathus aegnoreus Linnaeus, designated by Jordan, Genera of Fishes, pt. 3, p. 357, 1919.)

Aeus (Willoughby) Swainson, Nat. Hist. Animals, vol. 2, p. 333, 1839. (Type Syngnathus aegnoreus Linnaeus, designated by Jordan, Genera of Fishes, pt. 2, p. 205, 1919.)

Hymenolomus Dumeril, Hist. Nat. Poiss., vol. 2, p. 607, 1870. (Type Syngnathus hymenolomus Richardson, monotypic.)

Protocampus Günther, Cat. Fish. Brit. Mus., vol. 8, p. 193, 1870. (Type Syngnathus hymenolomus Richardson, monotypic.)

Asphyolax Cope, Proc. Acad. Nat. Sci. Philadelphia, p. 450, 1875. (Type Asphyolax pellucidus Cope, monotypic.)

Body smooth, rounded, keels
indistinct. Rings numerous.
Dorsal moderate, opposite vent.
Caudal absent or rudimentary,
tail tapering to point. No
pectoral. Eggs attached to
loose skin of abdomen of
male, not covered by lateral
folds.

Pelagic.

Horman, Trans. Zool. Soc. London,
vol. 22, pt. 3, no. 12, July 1927, p. 380
(Abret and Gulf of Suez, Suez Canal).
Vargus kotschyi Steindachner, Sitz.
Ber. Akad. Wiss. Wien, math.-naturw.
Klasse, vol. 74, pt. 1, 1876, p. 203. Arabian
Gulf; Madagascar.

Depth $2\frac{1}{3}$, without caudal; head $3\frac{2}{3}$.
Snout 3 in head from snout tip; eye 3
to 4, $1\frac{1}{4}$ to $1\frac{1}{2}$ in snout, $1\frac{1}{4}$ to $1\frac{1}{2}$ in
interorbital; maxillary reaches front
eye edge, length 4 in head from snout
tip; lower jaw slightly protrudes (in
figure); teeth 8 broad compressed inclined
incisors in each jaw and 3 rows of
rounded molars; interorbital low;
preopercle entire; opercle with blunt
spine.

Scales 62 to 68 in lateral line;
7 or 8 above, 16 below; 5 rows on cheeks

1407
Entelurus aequoreus (Linnaeus)

Syngnathus aequoreus Linnaeus,
Syst. Nat., ed. 10, pt. 1, p. 337, 1758
(type locality, Open sea).

179 Lethrinus olivaceus Valenciennes
~~Lethrinus olivaceus Valenciennes~~, Hist.
 nat. Poiss., vol. 6, 1830, p. 295. Unjer,
 Sunda Straits, Java. $\frac{1}{2}$ Peters, Archiv-
 naturgesch., 1855, p. 243 (Mozambique).
 $\frac{1}{2}$ Sauvage, Hist. nat. Madagascar,
 Poiss., 1891, p. 191, pl. 23, figs. 3, a-b
 (Madagascar; types of Lethrinus
olivaceus and Lethrinus waigiensis;
 Seychelles).

18 is d.
Lethrinus waigiensis Valenciennes, ~~sp.~~
 Hist. Poiss.,
 vol. 6, 1830, p. 297. Waigiu; New-
 Guinea.

Depth 3; head 3, upper profile
 very slightly arched. Snout 2 in
 head; eye 4, 2 in snout, $1\frac{1}{2}$ in
 suborbital depth to maxillary expansion;
 maxillary reaches $\frac{7}{8}$ to eye, length
 $2\frac{3}{5}$ in head; canines weak and teeth
 pointed; interorbital low.

Syngnathus hymenolomus Richardson,¹⁴⁰⁸
Voy. Erebus and Terror, Fish., pt. 8,
p. 52, pl. 30, figs. 11-13, 1848 (type
locality, Falkland Islands).

Protocampus hymenolomus Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 194, 1870
(types; Australia).

Herophis dumerili Steindachner,
Sitzs. Ber. Akad. Wiss. Wien, math.-
naturw. Kl., vol. 57, pt. 1, p. (38) 1002,
1868 (type locality, Bombay).

Herophis dumerili Günther, Cat. Fish.
Brit. Mus., vol. 8, p. 191, 1870 (compiled).
— Day, Fishes of India, pt. 4, p. 680,
1878 (Bombay); Fauna British
India, Fishes, vol. 2, p. 466, 1889.

Entelurus dumerili Duméril, Hist.
Nat. Poiss., vol. 2, p. 607, 1870 (compiled).

Cebu. December 17, 1907. Length 225 mm.

A1351. Great Tobea Island. December 15, 1907. Length 265 mm.

A1399. Tampotan Island. December 31, 1909. Length 239 mm.

A1216. Gomomo Island. December 3, 1909. Length 293 mm.

March 10, 1909.

Snout-vent 3 $\frac{3}{4}$ to 4, fourth ray 2 $\frac{2}{3}$ to 3; 6, III, 8, I, 2 $\frac{1}{4}$ to 2 $\frac{1}{3}$; caudal 1 $\frac{1}{3}$ to 1 $\frac{1}{2}$.

6206. Malapascua Island. March 10, 1909. Length 218 mm.

6585. Maricanan Island near Sepoc Point. July 21, 1908. Length 260 mm.

6231. Medio Island, Galera Bay, Mindoro. June 9, 1908. Length 290 mm.

9359. Murciellagor Bay, Mindoro. April 21, 1909. Length 244 mm.

17685. Murciellagor Bay. August 9, 1909. Length 207 mm.

9215 and 12581. Apol, Mindanao. August

1409

Head $3\frac{2}{3}$ to $4\frac{1}{2}$ to vent. Snout equals or rather longer than rest of head.

Trunk rings 28 to 30; all shields smooth.

D. 38 to 44; caudal rudimentary, very indistinct; vent opposite hind third of dorsal, premedian.
(Günther.)

India, Australia, Pelagic,
also in the Atlantic.

Genus Penetopteryx Lunel

Penetopteryx Lunel, Mem. Soc. Phys.
Sci. Nat. Genève, vol. 27, pt. 2, p.
11, 1881. (Type Penetopteryx
taeniocephalus Lunel, monotypic.)

Apterygocampus Weber, Siboga
Exped., vol. 57, Fische, p. 115, 1913.
(Type Apterygocampus epinnulatus
Weber, monotypic.)

1411

Body small, elongated, edges obtuse, trunk feebly hexagonal or heptagonal, tail tetragonal. Head very small, without ridges. Snout extremely small. Eye small, little advanced. Opercle without keel. Shields transversely striated, intermedial shields (Scutella) large, oval. Trunk short, at least twice as short as tail. Caudal rudimentary, all other fins wanting. Eggs in brood pouch on front part of tail formed by cutaneous folds beginning at anus and united mesially.

Mauritius and East Indies.

Analysis of Species

a.¹ Eye less than 2 in snout.

b.¹ Rings 12 + 38.

epinnulatus.

b.² Rings 19 + 42.

taeniocephalus.

a.² Eye 2 in snout; rings 20 + 44.

fowleri.

Penetopteryx

~~Apterygocampus~~ epinnulatus (Weber)

Apterygocampus epinnulatus Weber,
Siboga Exped., vol. 57, Fische, p. 116,
fig. 42, 1913 (type locality, Gesser
Island).

Penetopteryx epinnulatus Duncker,
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 102, 1914 (1915) (compiled).
— Weber and Beaufort, Fishes
Indo Austral. Archip., vol. 4, p.
96, fig. 40, 1922 (type).
(without egg pouch)

Depth $25\frac{3}{5}$; head $11\frac{4}{5}$, 3 to
vent. Snout 4 in head from
snout tip; eye $4\frac{1}{2}$, $1\frac{1}{8}$ in snout;
upper profile of snout slightly
concave, rises obliquely above eye;
opercle without keel.

A 1437, A 1494. Kait Point, Libani Bay, Celebes, Dutch East Indies.

December 29, 1909. Length 217 to 233 mm.

A 1350. Great Tobea Island. December 15, 1909. Length 296 mm.

A 1328. Tomahu Island, north end of Boero. December 11, 1909. Length 305 mm.

A 15119. Doc Can Island. January 7, 1910. Length 270 mm.

34808. U.S.N.M. Apia, Samoa.

May 15, 1883. Dr. W. H. Jones. Length 196 mm.

52377 U.S.N.M. Apia. Bureau of Fisheries (No. 02428). Length 245 mm.

Rings $12 + 38$; body nearly rounded; trunk feebly hexagonal. Keels only indicated by short edge on front part of each ring; upper trunk and caudal keels continuous; lower trunk and caudal keels continuous; median lateral trunk keel not beyond last trunk ring. Egg pouch ^{after 13 caudal rings} 4 in head.

Yellowish with white spot on each second ring. White spots and rings in bands between eyes, below and on opercle. Length 29 mm. (Weber and Beaufort.) East Indies. One specimen known.

1415

Penetopteryx taeniocephalus Lunel

Penetopteryx taeniocephalus Lunel,
Mém. Soc. Phys. Sci. Nat. Genève,
vol. 27, pt. 2, p. 11, 1881 (type locality,
Mauritius). — Sauvage, Hist. Nat.
Madagascar, Poiss., p. 508, pl. 49B,
figs. 7-a, 1891 (Mauritius). —
Duncker, Mitteil. Naturh. Mus.
Hamburg, vol. 29, p. 235, 1912
(); vol. 32, p. 102,
1914 (1915) (compiled).

Penetopterix taeniocephalus Lunel,
Mém. Soc. Phys. Sci. Nat. Genève,
vol. 17, pt. 2, pl. 1, figs. 1-e, 1881.

darker brown terminally.

Known only from the East Indies, though we now report it from the Philippines and China. According to Boulenger reaches 300 mm., though our largest examples larger.

8433. Cebu market. March 24, 1909.
Length 310 mm.

5931, 6004, 6001. Zamboanga market.
May 25 - 27, 1908. Length 270 to 335 mm.

A 798. Zamboanga market. October 9, 1907. Length 377 mm.

A 1620. Kafa, Kui Kui. February 7, 1910.
Length 320 mm.

Depth 28; head $12\frac{1}{3}$. Snout
Snout $2\frac{1}{2}$ in head, very short,
turned upward; eye 5, $1\frac{1}{3}$ in
snout; opercle covered with
small granulations.

Rings $19 + 42$.

Caudal rudimentary, rays
10.

Greenish brown or clear
yellow, deeper on first rings
of trunk. Head with 5 more
or less irregular white
transverse bands. Length 64
mm. (Sauvage.)

Mauritius.

Bourbon, Mauritius, Malacca.

Valenciennes says there are 17 or 18 longitudinal lines, deeper brown than general color of each side. Sauvage gives its length as 220 mm. He says it is similar to Pagrus spinifer, differing in a more convex upper profile and only the third dorsal spine greatly elongate.

1417

Penetopteryx fowleri Whitley

Penetopteryx fowleri Whitley, Rec.
Austral. Mus., vol. 19, no. 1, p. 65,
August 2, 1933 (type locality, New
Hebrides).

Depth 21, ~~snout~~; head $10 \frac{1}{2}$.
Eye greater than interorbital,
slightly less than caudal, 2 in
snout, bulbous; upper profile
of head subhorizontal with cave
dip before eyes, lower profile
oblique; mouth minute; no
ridges or granules on opercle.
Rings 26 + 44; keels not sharp;
upper keels of trunk and tail
continuous; mediolateral trunk
keel continuous with lower caudal
keel; ventral trunk keel ends at

Serranus merra (Bloch).

Epinephelus merra Bloch, Naturges.

Ausl. Fische, vol. 7, pt. 10, 1793, p. 17, pl.

327. Japan Sea. — Shaw and Nodder, Nat.

Miscellany, vol. 10, 1790, p. 382 (Japan Sea).

— Schneider, Syst. Ichth. Bloch, 1801, p. 300 (Indian Ocean, Japan, Coromandel).

— Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 55 (Sumatra, Batu, Nias, Pinang,

Singapore, Cocos Islands, Java, Celebes,

Sangir, Timor, Letti, Flores, Ternate, Ohi-

major, Buru, Cerau, Rimboma, Waigiu,

Philippines, New Guinea). — Streets,

Bull. U. S. Nat. Mus., no. 7, 1877, p. 92

(Christmas Island). — Bleeker, Verh.

Akad. Wet. Amsterdam, vol. 18, no. 3,

1879, p. 1 (Mauritius). — Boulenger, Cat.

Fishes Brit. Mus., vol. 1, 1895, p. 24

(Zanzibar, Mauritius, Rodrigues, Andamans,

China, Rin Kiu, East Indies, Philippines,

anus. Raised areas on body rings and shields between not forming knobs, but ridges which, notably on ventral surface of body, tend to fuse and give reticulated appearance.

Caudal rays 9 or 10, rounded, base slightly overlapped by last of lengthening and tapering caudal rings. Brood pouch with full, soft flaps, subcaudal, on 13 rings. Eggs in 2 rows, partly embedded in soft integument of tail.

Brown, head yellowish. From eye 4 or 5 dark brown bands radiate across snout and cheeks, 3 cross chin, 3 others cross interorbital. Irregularly curved band almost encircles head behind, asymmetrical on top head so left side fails to join right and lies ahead. Similar band crosses opercles, joins fellow

1418
of other side below head, above
interrupted by 2 short transverse
bars. On body from fifth to
fifteenth ring 5 longitudinal
rows of brown spots, surrounded
by lighter margins. Five or
6 anterior rings whitish, speckled
with black, on breast. Remainder
of body and tail fairly uniform
straw brown. Length 68mm.
(Whitley.)

Melanesia.

1418c

Genus Stigmatopora Kaup

Stigmatopora Kaup, Archiv Naturges.,
vol. 19, ^{pt. 1} p. 233, 1853. (Type
Syngnathus argus Richardson,
designated by Jordan, Genera of
Fishes, pt. 2, p. 254, 1919.)
Stigmatopora Kaup, Cat. Lophobr.
Fish Brit. Mus., p. 52, 1856. (Type
Syngnathus argus Richardson.)

Body subcylindrical, scarcely
broader than deep or strongly
depressed and very broad. Head
not elevated. Snout long, produced,
nearly equally high as head,
more or less than rest of head.
Eyes large. Opercle without
longitudinal keel or with basal
or complete one. Lateral shields
very oblique and extended into
sharp edges, which form median

1419
keels of trunk and border flat
abdominal surface, otherwise edges
obsolete. Upper and lower crests
of trunk united with corresponding
keels of tail. Prenuchal and $\frac{1}{2}$
nuchal shields present. Dorsal
long or very long, middle above or
somewhat before or behind anus.
Anal small. Pectorals well
developed. Tail long, without
caudal, ending filiform but
not prehensile. Eggs large, isolated
in cutaneous cells on lower surface
of tail, enclosed in completely
closed brood-pouch formed by
pair of lateral cutaneous folds
beginning behind vent. Sexes
strongly dimorphic?

New Guinea, Australia,
Tasmania, New Zealand.

Synopsis of Species

a.¹ D. 35 to 55.

b.¹ D. on 7 to 10 trunk and 8 to 12
caudal rings; no opercular keel
with age. argus.

b.² D. on 10 to 12 trunk and 6 or 7
caudal rings; opercular keel
present at all ages. nigra.

a.¹ D. 66 or 67; opercular keel complete.
macropterygia.

1421

Stigmatopora argus (Richardson)

Syngnathus argus Richardson,
Proc. Zool. Soc. London, p. 29, 1840
(type locality, Tasmania); Trans.
Zool. Soc. London, vol. 3, p. 183, pl.
7, fig. 2, 1849 (no type locality [= Tasmania]).
— Giets, Trans. Roy. Soc. South
Australia, vol. 32, p. 298, 1908.

Stigmatopora argus Kaup, Archiv
Naturges., vol. 19, ^{pt. 1} p. 233, 1853 (reference).

— Waite and Hale, Rec. South
Austral. Mus., vol. 1, no. 4, p. 308,
fig. 48, January 29, 1921 (Spencer
Gulf; St. Vincent Gulf; Fowler's
Bay). — Waite, Rec. South Austral.
Mus., vol. 2, no. 1, p. 56, fig. 86, April
23, 1921 (reference).

Serranus sexfasciatus Valenciennes.

Serranus sexfasciatus (Kuhland Van Hasselt)
Valenciennes, Hist. Nat. Poiss., vol. 2, 1828,
 p. 360. Java. — Günther, Cat. Fishes Brit.
 Mus., vol. 1, 1859, p. 108 (East Indies). —
Day, Fishes of India, pt. 1, 1875, p. 17
 (Japan; type). — Károli, Termész. Füzetek,
 Budapest, vol. 5, 1882, p. 149 (Singapore;
 Canton, China). — Day, Fauna Brit. India,
 vol. 1, 1889, p. 449. — Fowler, Proc. Acad.
 Nat. Sci. Phila., 1907, p. 257 (Padang
 material).

Epinephelus sexfasciatus Bleeker, Atlas
 Ichth. Ind. Néerl., vol. 7, 1873-76, p. 60,
 pl. (3) 281, fig. 2 (Sumatra, Singapore,
 Java, Celebes). — Boulenger, Cat. Fishes
 Brit. Mus., vol. 1, 1875, p. 214 (Philippines,
 Urafura Sea, Louisiades). — Steindachner,
 Mon. Akad. Wiss. Wien, vol. 39, no. 24, ^{nov. 20.} 1902,

Stigmatophora argus Kaup, Cat.
Lophobr. Fish Brit. Mus., p. 53,
1856 (New Guinea; Tasmania).

— Steindachner, Sitzs. Ber. Akad.
Wiss. Wien, math.-naturw. Kl.,
vol. 53, pt. 1, p. 475, 1866 (Port
Jackson). — Günther, Cat. Fish.
Brit. Mus., vol. 8, p. 189, 1870 (type;
Australia; Tasmania; Port
Jackson; New Guinea). — Duméril,
Hist. nat. Poiss., vol. 2, p. 583, 1870
(New Guinea; Tasmania; Oceania).

— Castelnau, Proc. Zool. Acclimat.
Soc. Victoria, vol. 1, p. 243, 1872
(St. Vincent Gulf, South Australia);
vol. 2, p. 77, 1873 (South Australia);
Proc. Linn. Soc. New South Wales,
vol. 3, p. 355, 1879 (Port Jackson).

— Klunzinger, Sitzs. Ber. Akad.
Wiss. Wien, math.-naturw. Kl., vol.

Brown, lighter below. Six transverse-oblique cross bands, slightly darker and more or less with short streaks, bars and spots below lateral line. Oblique dark streaks from eye over postocular and cheek, variably broken. Fins all pale, verticals and ventrals darker or grayish terminally.

Chinese Sea. Reported from the Philippines by Elera.

9745 and 11664. Kowloon market, China. October 5, 1908. Length 130 to 159 mm.

6828. Kowloon market. October 17, 1909. Length 171 mm.

- 80, pt. 1, p. 420, 1879 (1880) (Port Philip; Port Darwin). — Macleay, Proc. Linn. Soc. New South Wales, vol. 6, ^{pt. 1} p. 297, 1882 (compiled). — Johnston, ^{Pap.} Proc. Roy. Soc. Tasmania, p. 134, 188~~8~~¹ (^{Tasmania} ~~reference~~). — Ogilby, Cat. Fish. New South Wales, p. 60, 1886 (reference). — Duncker, Fauna Südw. Austral. Michaelson and Hartmeyer, vol. 2, ^{pt. 1, (Barrow Island)} p. 239, 1909. Mitteil. Naturh. Mus. Hamburg, vol. 32, p. 103, 1914 (1915) (New Guinea?; Australia; Tasmania). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 112 (compiled).

Scales 85 or 90 in lateral line to caudal base and 8 to 10 more on latter; pores 57 to 67 in lateral line to caudal base and 8 to 10 more on latter; 15 to 18 scales above lateral line, 26 to 29 below, 48 to 50 predorsal, 23 to 26 rows on cheeks; body scales without fine basal auxiliary scales; fine scales over fins basally; upper half of maxillary expansion with patch of fine scales. Scales with 5 basal radiating striae; circuli moderate.

D. XI, 13, I or 14, I, third spine $2\frac{7}{8}$ to $3\frac{1}{10}$ in total head length, third ray $2\frac{1}{3}$ to $2\frac{1}{2}$; A. III, 8, I, third spine $3\frac{1}{4}$ to $3\frac{1}{2}$, third ray $2\frac{1}{8}$ to $2\frac{1}{4}$; caudal $1\frac{2}{3}$ to $1\frac{3}{4}$, convex behind; least depth of caudal peduncle $3\frac{2}{3}$ to 4; pectoral $1\frac{3}{4}$ to $1\frac{4}{5}$; ventral $2\frac{1}{8}$ to $2\frac{1}{5}$.

Gastrotokous gracilis Klunzinger,
 Archiv Naturges., vol. 36^{pt. 1}, p. 44, 1872
 (type locality, ~~South Australia~~
 Port Phillip)

Stigmatophora gracilis Macleay,
 Proc. Linn. Soc. New South Wales,
 vol. 6^{pt. 2}, p. 299, 1881 (1882) (Tasmania).
 [as a new species!]

— Johnston, Proc. Roy. Soc. Tasmania,
 p. 134, 1883 (reference).

Depth $3\frac{1}{2}$ to $3\frac{3}{5}$; head $2\frac{1}{4}$ to $2\frac{2}{5}$, width $2\frac{1}{5}$ to $2\frac{4}{5}$. Snout $4\frac{3}{4}$ to $4\frac{4}{5}$ in head from snout tip; eye 5 to $5\frac{1}{2}$, 1 to $1\frac{1}{4}$ in snout, greater than interorbital; maxillary reaches opposite hind eye edge or little beyond; expansion $1\frac{2}{3}$ to $1\frac{3}{4}$ in eye, length $2\frac{1}{8}$ to $2\frac{1}{5}$ in head from snout tip; teeth in narrow bands in jaws, biserial on sides of mandible; pair of canines in front of each jaw; band of fine teeth across vomer and each palatine; interorbital $6\frac{1}{4}$ to $7\frac{1}{3}$, very slightly convex; hind preopercle edge minutely serrate and 3 large spines at angle; median opercle spine nearer lower and upper advanced. Gill rakers 9 + 16, lanceolate, equal gill filaments or half of eye.

Stigmatophora olivacea Castelnau,
 Proc. Zool. Acclimat. Soc. Victoria,
 vol. 1, p. 244, 1872 (type locality,
 St. Vincent's Gulf, South Australia);
 vol. 2, p. 77, 1873 (South Australia).
 — Macleay, Proc. Linn. Soc. New South
 Wales, vol. 6, pt. 6, p. 298, 1882 (compiled).
 — Ogilby, Mem. Queensland Mus.,
 vol. 1, p. 36, 1912.

Syngnathus olivacea Zietz, Trans.
 Roy. Soc. South Australia, vol. 32, p.
 298, 1908.

Syngnathus unicolor Castelnau, Viet.
 Rep. Philadelphia Centenn. Exhib.
 (Res. Fish. Australia), p. 49, 1875
 (type locality, Port Walcott, Western
 Australia).

Stigmatophora unicolor Macleay, Proc.
 Linn. Soc. New South Wales, vol. 6, p. 2,
 p. 298, 1882 (compiled).

Serranus brunneus (Bloch).

Epinephelus brunneus Bloch, Naturg.
Ausl. Fische, vol. 7, 1793, p. 15, pl. 328,
fig. 2. "Norway." — Schneider, Syst. Ichth.
Bloch, 1801, p. 300 (Japan).

Epinephelus brunneus Boulenger, Cat.
Fishes Brit. Mus., vol. 1, 1895, p. 213 (Canton).

Serranus brunneus Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 107 (China). —

Kner, Reise Novara, Zool., vol. 1, pt. 5,
1865, p. 18 (Madras). — Elera, Cat. Fauna
Filip., vol. 1, 1895, p. 459 (Luzon, Cagayan).

Serranus kawamebari (non Schlegel)

Richardson, Ichth. China Jap., 1846, p. 234
(Canton).

Stigmatophora depressiuscula Macleay,
Proc. Linn. Soc. New South Wales, vol. 6,
p. 299, 1882 (type locality, King George's
Sound).

Stigmatophora argus var. brevicaudata
Lucas, Proc. Roy. Soc. Victoria,
ser. 2, vol. 3, pp. 14, ^{April} 1891 (type
locality, Geelong Inner Bay, Victoria).

18854. Hong Kong market. October
19, 1908. Length 177 mm.

6801. Kowloon market. September
18, 1909. Length 191 mm.

6827. Kowloon market. October
17, 1909. Length 253 mm.

11665. Kowloon market. October 5,
1908. Length 125 mm.

Head $5\frac{1}{5}$ to $6\frac{2}{5}$, $1\frac{1}{3}$ in trunk.

Trunk $1\frac{2}{3}$ to $2\frac{4}{5}$ in tail, $3\frac{1}{2}$ to $4\frac{4}{5}$ in total. Snout $1\frac{1}{2}$ in head, more than twice rest of head, with low median crest ending before eyes; eye $6\frac{1}{5}$ to $7\frac{3}{5}$ in snout, $11\frac{9}{10}$ to $10\frac{9}{10}$ in head; supraorbital ridges begin on last third of snout, not reaching behind eye; lateral ridge from mouth angle to lower part of front eye edge; low ridges define lower snout edges, low each side of median ventral ridge, which bifurcates below front edges of eyes; head finely pitted; opercles with additional radiating striae; feeble opercular ridge in young.

Rings 17 to 22 + 68 to 90; depressed, widest at middle of trunk, $1\frac{2}{5}$ to more than $\frac{1}{2}$ times wider than deep in male, rather more depressed.

Upper and lower trunk and caudal keels continuous, much more distinct on tail; lateral trunk keel reaches

sixth caudal ring or ends in
skinny folds of brood pouch;
ventral trunk beel ends at anus.

D. 43 to 55, on 7 to 10 trunk and
8 to 12 caudal rings; A. rays 2
to 4; pectoral 14 to 17.

Male with head and snout dark
green, opercles opalescent below.
Body olive green above, with
narrow whitish bar across each
ring, become less distinct on tail,
bars sometimes present on snout also.
Under side of trunk dusky, sutures
of rings darker, ventral surface
of tail lighter, often with bars and
caudal rings black. Brood pouch
whitish, or pink when containing
young, with longitudinal black
streaks. Sometimes head and snout
light brown and body and tail
above yellowish brown. Numerous
black dots, edged white, on trunk
where additional faint, white
transverse bars often present.

Under side sometimes pale, without markings.

Female with snout and head dusky. Opercles opalescent. Body dusky olive, darker above, with numerous black, white edged dots between nape and first third of tail. Tail much lighter posteriorly. Sometimes ground color light yellowish brown, sometimes with indications of white transverse bars usually associated with male. Length 250 mm.

(Waite and Hale.)

Papua, Australia, Tasmania.

Stigmatopora nigra Kaup

Stigmatopora nigra ~~ca~~ Kaup, Archiv
Naturg., vol. 19, ^{pt. 1, 2} p. 233, 1853 (type
locality, Tasmania) (no description).

Scales 70 in lateral line to caudal base ~~and 10 more on latter~~; 15 above, 27 below, 73 predorsal, 10 rows on cheeks to preopercle ridge. Scales with 9 basal radiating striae; 59 or 60 weak apical denticles, with 5 or 6 transverse series of basal elements; circuli fine.

D. XIII, 10, I, fourth spine $3\frac{1}{4}$ in total head length, fourth ray $2\frac{4}{5}$; A. III, 9, I, second spine $3\frac{1}{3}$, second ray $2\frac{7}{8}$; caudal $1\frac{1}{4}$, emarginate; pectoral 1; ventral $1\frac{4}{5}$.

Head vinaceous, trunk and tail pinkish buff. Mouse gray transverse band across front of interorbital, squamous area forward opposite front nostril.

South Africa.

53026 A. N. S. P. Natal. H. W. Bell
Marley. Length 250 mm.
1925.

Stigmatophora nigra Kaup, Cat.

Lophobr. Fish Brit. Mus., p. 53, 1865
(Tasmania). — Günther, Cat. Fish.

Brit. Mus., vol. 8, p. 190, 1870

(Australia). — Duméril, Hist. Nat.

Poiss., vol. 2, p. 583, 1870 (type). —

Castelnau, Proc. Zool. Acclimat.

Soc. Victoria, vol. 1, p. 201, 1872

(Victoria); vol. 2, p. 39, 1873

(Melbourne); Offic. Rec. Philadelphia

Expos. (Res. Fish. Austral.), p. 48,

1875 (); Proc. Linn.

Soc. New South Wales, vol. 3, p. 55,

1878 (1879) (Port Jackson). —

— Johnston, Pap. Proc. Roy. Soc. Tasmania,
↓ 1881, p. 134 (Tasmania).

> — Ogilby, Cat. Fish. New South Wales,
p. 66, 1886 (reference). New. Queensland

— Duncker, Fauna Nüchv. Austral. Nielsen
and Hartmeyer, vol. 2, pt. 1, p. 239, 1909
(Sandridge; Tasmania). — Ogilby,

Stigmatophora nigra Kaup, Cat.

Lophobr. Fish Brit. Mus., p. 53, 1865
(Tasmania). — Günther, Cat. Fish.

Brit. Mus., vol. 8, p. 190, 1870

(Australia). — Duméril, Hist. Nat.

Poiss., vol. 2, p. 583, 1870 (type). —

Castelnau, Proc. Zool. Acclimat.

Soc. Victoria, vol. 1, p. 201, 1872

(Victoria); vol. 2, p. 39, 1873

(Melbourne); Offic. Rec. Philadelphia

Expos. (Res. Fish. Austral.), p. 48,

1875 (); Proc. Linn.

Soc. New South Wales, vol. 3, p. 55,

1878 (1879) (Port Jackson). —

Macleay, Proc. Linn. Soc. New South

Wales, vol. 6, p. 297, 1881 ().

> — Ogilby, Cat. Fish. New South Wales,

p. 60, 1886 (reference), Mem. Queensland

Mus., vol. 1, p. 36, November 27, 1912

(Bulwer). — McCulloch, Australian

Weber, Siboga Exped., vol. ⁵⁷ ~~65~~ ^{Pisces}, 1913, p. 202
(Bara Bay, Borneo Island). —

Pellegrin, Bull. Soc. Zool. France, vol. 39, 1914, p. 224 (Fort Dauphin, Madagascar).

— Barnard, Ann. South Afr. Mus., vol. 21, 1927, p. 478 (Natal coast).

Verranus nebulosus (non Valenciennes)

Richardson, Ichth. China ^{and Japan}, 1846, p. 232 (Canton).

Verranus trimaculatus (non Valenciennes)

Bleeker, Act. Soc. Sci. Ind. Néerl., vol. 3, no. 9, 1858, p. 8.

Verranus sexfasciatus (non Valenciennes)

Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 108 (East Indies).

Verranus fasciatomaculatus Peters,

Monatsber. Akad. Wiss. Berlin, 1865,

p. 111.

1432
Zoologist, vol. 1, p. 29, figs. 1 to 3, 1914.

Stigmatopora nigra

~~was~~ ¹ Waite and Hale, Records South
Australian Mus., vol. 1, no. 4, p. 311,
fig. 49, January 29, 1921 (Spencer
Gulf; St. Vincent Gulf).

— Waite, Rec. South Austral. Mus., vol.
2, no. 1, p. 57, fig. 87, April 23, 1921
(reference).

— McCulloch

Cullock and Whitley, Mem. Queensland
Mus., vol. 8, pt. 2, p. 137, July 7, 1925
(reference).

— McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 93, June 29, 1929
(reference).

Alulosparus new subgenus 5

Type $\frac{1}{2}$ Tagus filamentosus Valenciennes

Diagnosis: Differs from the other members of this genus chiefly in the prolonged third dorsal spine. Scales moderate.

Second anal spine largest. Red.

Etymology, from $\alpha\lambda\upsilon\lambda\omicron\varsigma$ a slave, with reference to a lash, Sparus.
(the long dorsal spine)

Stigmatophora boops Castelnau, Proc.
Zool. Acclimat. Soc. Victoria, vol. 1,
p. 203, 1872 (type locality, Victoria)
(nomen nudum). — Macleay, Proc.
Linn. Soc. New South Wales, vol. 6,
p. 298, 1881.

Syngnathus pelagicus (not Linnaeus)
Zietz, Trans. Roy. Soc. South
Australia, vol. 32, p. 298, 1908.

Filip., vol. 1, 1895, p. 460 (Luzon, Currimao, Ilocos). — Fowler, Proc. Acad. Nat. Sci. Phila., 1925, p. 222 (Natal); Bishop Mus. Bull., no. 38, 1927, p. 13 (Jarvis Island, Polynesia). Serranus (Epinephelus) diacanthus Zugmayer, Abhandl. Bayer. Akad. Wiss., vol. 26, pt. 6, 1913, p. 10 (Mekran and Oman). Epinephelus diacanthus Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 209 (Muscat, Bombay, Madras, India, Hong Kong, Amoy, Formosa, Shanghai, China). — Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1902, p. 341 (Formosa). — Pellegrin, Bull. Soc. Zool. France, vol. 30, 1905, p. 85 (Tonkin). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 19 (Cavite). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 256 (Cuyo and Cagayanillo). —

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Head $5\frac{2}{5}$ to $6\frac{4}{5}$ in total, $2\frac{4}{5}$ to vent. Snout $1\frac{3}{5}$ to $1\frac{2}{3}$ in head, twice postorbital, with low median keel above; eye 8 to 10, 5 to $6\frac{1}{3}$ in snout; opercle with well defined keel and radiating striae below.

Rings 16 to 18 + 58 to 72; little wider than deep in male, more than twice wide as deep in female, dorsal surface slightly convex. Upper and lower trunk keels continuous with those of caudal; lateral median trunk keel extends on front caudal ring, in female extended to form sharp edge to greatly expanded body. Tail half total in female, longer in male.

D. 35 to 43, on 10 to 12 trunk and 6 or 7 caudal rings. Brood pouch on 14 caudal rings.

Snout dusky. Body light green, with number of tiny black dots, massed on under

side to form dark bar on
each ring. Length 108 mm.

(Waite and Hale.)

South Australia, Victoria,
Tasmania, New South Wales.

1435

Stigmatopora macropterygia (Duméril)

Stigmatopora macropterygia Duméril,
Hist. nat. Poiss., vol. 2, p. 583, 1870
(type locality, "Océanie"). —

Duncker, Mitteil. naturh. Mus.
Hamburg, vol. 32, p. 104, 1914 (1915)
(French Pass, New Zealand).

Stigmatopora longirostris Hutton,
Cat. Fish. New Zealand, p. 69, 1872
(type locality, Wellington
Harbour).

Stigmatopora longirostris Waite,
Records Canterbury Mus., vol. 1,
no. 1, p. 14, April 25, 1907 (reference).

Depth $3\frac{1}{6}$ to $3\frac{2}{5}$; head $2\frac{2}{5}$ to $2\frac{1}{2}$,
 width $2\frac{1}{4}$ to $2\frac{2}{5}$. Snout $3\frac{2}{3}$ to $4\frac{1}{5}$
 in head from snout tip; eye $4\frac{2}{3}$ to $5\frac{1}{2}$,
 $1\frac{1}{6}$ to $1\frac{1}{4}$ in snout, greater than
 interorbital; maxillary reaches $\frac{2}{3}$ to
 $\frac{4}{5}$ in eye, expansion $1\frac{3}{5}$ to 2 in eye,
 length $2\frac{1}{5}$ to $2\frac{1}{4}$ in head from snout
 tip; teeth in narrow bands in jaws,
 biserial on sides of mandible; pair
 of small canines in front of each
 jaw; band of small teeth on vomer
 and each palatine; interorbital $6\frac{1}{2}$
 to $7\frac{1}{2}$, slightly convex; hind preopercle
 edge denticulate and 2 enlarged
 serrae at angle; median opercular
 spine nearer lower and upper
 advanced. Gill rakers 8 + 16, little
 longer than gill filaments or $1\frac{3}{4}$
 in eye.

Scales 85 to 98 in lateral line to

Tail more than twice trunk,
not twice combined head and
trunk. Snout nearly $2\frac{1}{2}$ times
rest of head; opercle with
distinct median longitudinal
ridge, but slightly developed
in young.

Rings $21 + 72$.

D. 66 or 67. Egg pouch shorter
than trunk, on 20 rings.

Above brown, with single row
of black spots on each side at
sutures of trunk rings, not
extending on tail. Young with
back uniform light brown.

Length 355 mm. (Hutton.)

New Zealand.

subequal in length, second stouter.

Brilliant orange red, deeper above, paler below, head more orange. Silvery whitish patch on side of body. Azure blue band between eyes, usually persists as dark band in preserved specimens. Pectoral axil more or less dark. Sometimes dark spot at base of last dorsal ray, more conspicuous in preserved specimen. Fins rosy. Ventral and often soft dorsal violaceous. Young with silvery white patch on side, usually much larger in adult. Reaches 500 mm. (Barnard.)

Zanzibar, Mauritius, Natal, South Africa. Valued as a food fish.

Genus Syngnathoides Bleeker

Syngnathoides Bleeker, Natuurk.
Nijds. Ned. Indië, vol. 2, pp. 231, ^{259,} 1851.
 (Type Syngnathoides blochii
Bleeker = Syngnathus biaculeatus
Bloch, orthotypic.)

Gasterotokeus (Heckel) Kaup, ^{Archiv.} Cat.
~~Lophobr. Fish Brit. Mus., p. 18, 1856.~~
~~Naturges., vol. 19, pt. 1, p. 230, 1853.~~
 (Type Syngnathus biaculeatus
Bloch, monotypic.)

Gastrotokus Günther, Cat. Fish.
Brit. Mus., vol. 8, p. 194, 1870. (Type
Syngnathus biaculeatus Bloch.)

Body elongate, depressed, tetragonal, with narrow dorsal surface. Ventral surface much widened, limited by median lateral keels (lateral lines) and in male covered by soft skin in which eggs embedded, uncovered by cutaneous folds or scutal plates. Opercle without keel.

Upper keels of trunk and tail. as also lower keels continuous, not conspicuous on trunk. Hind end of median keels (lateral lines) bent upward and reaching upper keel behind dorsal or nearly so. No intermedial scutes.

Prenuchal plate absent, with unprotected surface of skin between occiput and first ring. Nuchal plates 2. Tail shorter

p. 3.

Serranus celebicus var. multipunctatusKossmann and Räuber, Zool. Ergebn.
Reise Roth. Meer., 1877, p. 6. Red Sea.Serranus assabensis Giglioli,
Ann. Mus. Civ. Genova, ser. 2, vol. 6,
1888, p. 68. Assab.

Depth $2\frac{7}{8}$; head $2\frac{2}{3}$, width 3.
Snout $3\frac{2}{5}$ in head from snout tip;
eye $7\frac{1}{2}$, $2\frac{1}{8}$ in snout, $1\frac{1}{4}$ in
interorbital; maxillary reaches
opposite eye center, expansion
nearly equals eye, length $2\frac{1}{10}$ in
head from snout tip; teeth very
fine, in narrow bands in jaws,
3 or 4 series in front of mandible
narrowing to 2 series laterally;
pair of small canines in front
of each jaw, some double; narrow

than head and body, hexagonal
in its subdorsal part, posterior
quadrangular, rapidly tapering,
without caudal, prehensile.

Indo Pacific.

Quoy, Fishes of India, pt. 1, 1875,
 p. 12, pl. 1, fig. 4; Suppl., 1888, p. 780;
Fauna British India, vol. 1, 1889, p. 445.
Epinephelus areolatus Sauvage, Hist.
Nat. Madagascar, Poiss., 1891, p. 74.

Serranus waandersii Bleeker, Nat.
Tijds. Ned. Indië, vol. 17, 1858-59, p. 152.
 Goleling, Bali.

Serranus wandersi Pearson, Rep.
Marine Biol. Ceylon, 1912-13, pt. 4, p.
 E13 (Cheval Paar Group).

Epinephelus waandersii Bleeker,
Atlas Ichth. Ind. Néerl., vol. 7, 1873-
 76, p. 47, pl. (3) 281, fig. 1 (Bali).

Serranus geoffroyi Klunzinger, Verh.
zool. bot. Gesell. Wien, vol. 20, 1870, p.
 875. Red Sea. — Boulenger, Proc. Zool.
Soc. London, 1887, p. 654 (Muscat, Arabia).

Serranus (Hyposerranus) geoffroyi
Klunzinger, Fische Roth. Meer., 1884,

1439

Syngnathoides biaculeatus (Bloch)

Syngnathus biaculeatus Bloch,
Naturg. Ausl. Fische, vol. 1, p. 10, pl.
121, figs. 1-2, 1785 (type locality,
East Indies). — Bonnaterre, Encycl.
Method., p. 32, pl. 22, fig. 76, 1788
(^{-Walbaum, Arted. Pisc., vol. 3, p. 15, 1792 (copied)}compiled). — Schneider, Syst.
Ichth. Bloch, p. 515, pl. 107, 1801
(East Indies). — Shaw, General
Zool., vol. 5, p. 453, 1804 (Indian Seas).
— ^{-Shaw and Nodder, Nat. Miscellany, vol. 18, pl. 714, 1806 (Indian Seas)}Richardson, Ichth. China
Japan, p. 202, 1845 (China Seas,
Philippines). — Cantor, Journ.
Asiatic Soc. Bengal., vol. 18^{pt. 2}, p. 1369,
1849 (1850) (Pinang; Singapore; Malay v. ^{Peninsula}). —
Bianconi, Specim. Zool. Mossambique,
p. 222, 1855. — Günther, Fishes of
Zanzibar, p. 139, 1865 (Aden; Zanzibar).
— Peters, Monatsb. Akad. Wiss.
Berlin, p. , 1868 (Leyte). — Chevey,
Inst. Océan. Indo Chien, 19^e note,

1440
p. 18, August 25, 1932 (Indo China).
~~Indo China~~

47, 1912, p. 413 (Kagoshima). —

Tanaka, Figs. Descript. Fishes Japan,
vol. 38, September 1, 1927, p. 737, pl. 163,
fig. 453 (Tanaka, Japan).

Serranus (Epinephelus) chlorostigma
Zugmayer, Abhandl. Bayer. Akad.
Wiss., vol. 26, pt. 6, 1913, p. 9 (Oman).

Serranus taurina (non Forskål) Goffroy,
St. Hilire, Descript. Egypte, Poiss.,
1807, p. 13, pl. 20, fig. 1.

Serranus revolutus (non Forskål)
Valenciennes, Hist. Nat. Poiss., vol. 2,
1828, p. 350 (Red Sea). — Peters,
Arch. Naturg., 1855, p. 255 (Mozambique).

— Günther, Cat. Fishes Brit. Mus., vol. 1,
1859, p. 149 (Red Sea). — Playfair, Fishes
of Zanzibar, 1866, p. 11 (Zanzibar). Proc.
Zool. Soc. London, 1867, p. 848 (Veychelien).

— Klunzinger, Arch. zool. bot. Gesell.
Wien, vol. 20, 1870, p. 675 (Red Sea). —

Gastrotobius biaculeatus Peters,¹⁴⁴¹
Archiv Naturges., p. 277, 1855
(Mossambique). — Bleeker, Naturk.
Tijds. Ned. Indië, vol. 13, p. 386,
1857 (Batjan); vol. 15, p. 204, 1858
(Goram), p. 243 (Singapore); vol.
18, p. 357, 1859 (Bawean), p. 361
(Blinja, Bangka); vol. 22, p. 98,
1860 (New Guinea); Act. Soc.
Sci. Ind. Néerl., vol. 3, no. 5, p. 2,
1857-58 (Macassar); vol. 6, no. 2,
p. 5, 1859 (Dorey, New Guinea);
Ned. Tijds. Dierk., vol. 1, p. 151,
1863 (Batjan), p. 249 (Flores);
Verslag. Akad. Wet. Amsterdam,

— Peters, Monatsber. Akad. Wiss. Berlin,
1868, p. 276 (Java; Leyte). —

1860. ~~X~~ Sumner, Cal. Fish. Mus.
Mus., vol. 8, p. 194, 1870 (Cape York;
China Sea, Zanzibar, Seychelles,
East Indies, Singapore, Amboina,

Gastrotobius biaculeatus Peters,¹⁴⁴¹
Archiv Naturges., p. 277, 1855
(Mossambique). — Bleeker, Naturk.
Tijds. Ned. Indië, vol. 13, p. 386,
1857 (Batjan); vol. 15, p. 204, 1858
(Goram), p. 243 (Singapore); vol.
18, p. 357, 1859 (Bawean), p. 361
(Blinja, Banka); vol. 22, p. 98,
1860 (New Guinea); Act. Soc.
Sci. Ind. Néerl., vol. 3, no. 5, p. 2,
1857-58 (Macassar); vol. 6, no. 2,
p. 5, 1859 (Dorey, New Guinea);
Ned. Tijds. Dierk., vol. 1, p. 151,
1863 (Batjan), p. 249 (Flores);
Verslag. Akad. Wet. Amsterdam,
ser. 2, vol. 2, p. 281 (Dorey), p. 290
(Rio, Bintang), p. 298 (Waigiu),
1868. — Günther, Cat. Fish. Brit.
Mus., vol. 8, p. 194, 1870 (Cape York;
China Sea, Zanzibar, Seychelles,
East Indies, Singapore, Amboina,

18884. Tilig, Lubang, July 15, 1908.^{209c}

Length 180 mm.

6668. Varadero Bay, Mindoro.

July 23, 1908. Length 64 to 194 mm. 2 examples.

Smaller with 7 obscure dark blotches along back and reflected alternately below lateral line.

5927. Zamboanga. May 25, 1908.

Length 340 mm.

7763. Manila market. June 17, 1908. Length 319 mm.

Outer portion of lower caudal lobe evidently bitten off and healed, rays curved.

these dimensions. The species
is well figured by Günther
in Verhandlungen, though
its dark spots on the breast, short
and belly are like our small

Philippines, North West Australia).
— Klunzinger, Verh. Zool. Bot.
Gesell. Wien, vol. 21, p. 653, 1871
(Red Sea). — Duméril, Hist. Nat.
Pois., vol. 2, p. 528, 1870 (Amboina,
Siam, China, Red Sea, Zanzibar,
Madagascar). — Bleeker, Arch.
Néerl. Sci. Nat., vol. 13, p. 37, 1878
(New Guinea). — Day, Fishes of
India, pt. 4, p. 681, pl. 174, fig. 5,
1878. — Alleyne and Macleay,
Proc. Linn. Soc. New South Wales,
vol. 1, p. 354, 1876 (Hall Sound,
New Guinea). — Macleay, Proc.
Linn. Soc. New South Wales, vol. 2,
p. 236, 1881 (Cape York, Port
Essington, South New Guinea); vol. 6,
p. 300, 1882 (South coast New Guinea);
vol. 8, p. 279, 1883 (South east New
Guinea). — Littlejohn, Proc. Linn.

Serranus corallicola by Boulenger.
The usually accepted Holocentrus
maculatus Bloch ~~1794~~ is preoccupied
in Serranus by Perca maculata
Bloch, a synonym of the Atlantic
Trachinus adscensionis Osbeck.

The next available name would have
been Holocentrus albofuscus Lacépède,
though as shown by Jordan and
Richardson is replaced by the
earlier Perca fario Thunberg. As
Bleeker pointed out the most
noteworthy character of this species
is the graduated second, third and
fourth dorsal spines, which are
much longer than the others. Of
Bleeker's series of 12 examples
he gives 276 mm. as the greatest
length, though Boulenger gives
400 mm. Our materials all exceed

Soc. New South Wales, vol. 8, p. ,
1883 (Torres Strait). — Peters, Trans.
Roy. Soc. Arts Sci. Mauritius, new
ser., vol. 11, p. 58, 1883 (Seychelles).
— Day, Fauna British India,
Fishes, vol. 2, p. 467, 1889. — Elera,
Cat. Fauna Filipinas, vol. 1, p. 598,
1895 (coast of Samar). — Ishikawa
and Matsuura, Cat. Fish. Mus.
Tokyo, p. 4, 1897. — Jordan and
Snyder, Annot. Zool. Japon., vol. 3,
p. 58, 1901 (on Bleeker's Japanese
record; Miyako Island). —
Deuckers, Mitteil. Naturh. Mus.
Hamburg, vol. 21, p. 189, 1903 (1904)
(Singapore). — Jordan and Seale,
Bull. Bur. Fisher., vol. 25, p. 215,
1905 (1906) (Apia; Pago Pago). —
Deuckers, Faun. Südwest Austral.
Michaelsen and Hartmeyer, vol. 2, ^{pt. 1,} p.

Brown generally, slightly paler on breast and belly. Head, body and fins everywhere with rounded dusky brown to blackish spots, rather large or equal in diameter to pale interspaces. Large examples with spots more numerous. Fins all shaded more or less darker than body color or with neutral tint. S. D. brown.

Zanzibar, Zululand, Natal, Cape of Good Hope, Mauritius, Ceylon, India, Andamans, East Indies, Philippines, China, Japan, Melanesia, Micronesia. We admit the synonymy as given by Tanaka, with the exception of Serranus corallicola Valenciennes, Serranus altiveloides Bleeker ^{and} Serranus howlandi Günther, which are placed with

234, 1909, — Günther, Journ. Mus.

Godeffroy, vol. 9, pt. 17, p. 434, 1910

(Samoa; Yap). — Pellegrin,

Annuaire Mus. Zool. R. Un. Napoli,

new ser., vol. 3, no. 27, p. 11, 1912

(San Jacinto, Philippines). —

Duncker, Mitteil. Naturh. Mus.

Hamburg, vol. 32, p. 38, 1915 (East

Africa, Samoa, Formosa, Victoria).

— Fowler, Copeia, no. 58, p. 62, June 18, 1918 (Philippines).

— Fowler and Bean, Proc. U. S. Nat.

Mus., vol. 62, p. 11, 1922 (Cebu). —

Duncker and Mohr, Mitteil. Zool.

Mus., Hamburg, vol. 41, p. 11, 1925

(north coast New Mecklenburg;

Linden Harbor, south coast, Rein

Bay and Hanam Harbor, New

Pommerania; east of Long Island

to New Guinea). — Fowler, Bull.

Bishop Mus., no. 22, p. 7, 1925

(Guam).

76 to 80 predorsal forward nearly to snout tip, 40 to 50 rows obliquely across cheeks to preopercle angle; most head and body scales with small crowded auxiliary basal scales, broad patch of scales on maxillary expansion, in 14 to 16 transverse rows. Scales with 6 basal radiating striae; 24 to 37 apical denticles, with 5 to 7 transverse series of basal elements; circuli moderate.

D. XI, 16, I, third spine $2\frac{2}{3}$ to $2\frac{3}{4}$ in total head length, third ray $2\frac{4}{5}$ to $2\frac{7}{8}$; A. III, 8, I, third spine $3\frac{3}{4}$ to $4\frac{1}{4}$, sixth ray $2\frac{1}{5}$ to $2\frac{1}{4}$; caudal $1\frac{2}{3}$ to $1\frac{3}{4}$, convexly rounded behind; least depth of caudal peduncle $3\frac{1}{5}$ to $3\frac{1}{4}$; pectoral $1\frac{3}{4}$ to 2; ventral $1\frac{4}{5}$ to $2\frac{1}{10}$.

1445

Gasterotokeus biaculeatus ✓ Bleeker,

Kaup, Cat. Lophobr. Fish Brit. Mus.,
p. 19, 1856 (China, Indian Ocean, Indian
Archipelago, Red Sea, Madagascar).

p. 73, 1859 (reference) ✓ Nat. Tijds.

— Gill, Proc. Acad. Nat. Sci.
Philadelphia, p. 149, 1859 (Shimoda).

— Bleeker,

(Saparoua), p. 364 (Noussa-laut,
Moluccas); Ned. Tijds. Dierk.,
vol. 2, p. 141, 1865 (Buru). —

Castelnau, Proc. Zool. Acclimat.
Soc. Victoria, vol. 2, p. 120, 1873
(Noumea, New Caledonia). —

Schmeltz, Cat. Mus. Godeffroy,
no. 5, p. 38, 1874 (Tonga). ~~and~~

~~Fishes of India, pt. 7, p. 68, pl.~~
~~474, fig. 5, 1878.~~

1445-

Gasterotokeus biaculeatus ✓ Bleeker,

es clea Nat. Tijds. Ned. Indië, vol. 13, p. 58,
1857 (Kopli, Buru); Act. Soc.
Sci. Ind. Néerl., vol. 2, no. 7, p. 9,
1857 (Amboina); vol. 8 (Sumatra),
p. 73, 1859 (reference). ✓ Nat. Tijds.
Ned. Indië, vol. 22, p. 110, 1860
(Buru); Verslag. Adv. Wet.
Amsterdam, vol. 16, p. 360, 1864
(Saparoua), p. 364 (houssa-lant,
Moluccas); Ned. Tijds. Dierk.,
vol. 2, p. 141, 1865 (Buru). —
Castelnau, Proc. Zool. Acclimat.
Soc. Victoria, vol. 2, p. 120, 1873
(Noumea, New Caledonia). —
Schmeltz, Cat. Mus. Godeffroy,
no. 5, p. 38, 1874 (Tonga). ~~Sweden,~~
~~Fishes of India, pt. 2, p. 168, pl.~~
~~474, fig. 5, 1878.~~

yellowish tinge, membranes clear

Gaster

Nat. Tijds.

1857 (

Sci. D.

1857 (

L. 73, 185

Ned. D.

(Buru),

Amsterdam

(Saparou

Filip., vol. 1, 1895, p. 463 (Luzon, Manila).

Epinephelus chlorostigma Sauvage,

Hist. Nat. Madagascar, Poiss., 1891, p. 73.

— Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 203 (Red Sea, Massawah,

Zanzibar, Seychelles, Muscat, China).

— Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1903, p. 341 (Formosa). —

Regan, Journ. Bombay Nat. Hist. Soc., vol. 16, no. 2, 1905, p. 329 (Persian Gulf);

Journ. Linn. Soc. London, vol. 12, ser. 2, 1907, p. 222 (Cargados Craxos, in 20 to 30 fathoms). — Steindachner, Denkschr.

Akad. Wiss. Wien, vol. 71, pt. 1, 1907, p. 125 (Gischn, south Arabia). — Jordan and

Richardson, Mem. Carnegie Mus., vol. 4, 1909, p. 183 (Takao, Keelung, Formosa);

Proc. U. S. Nat. Mus., vol. 37, 1910, p. 446, fig. 6 (Misaki, Nagasaki, Wakanoura).

— Snyder, Proc. U. S. Nat. Mus., vol.

— Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 24, p. 11, 1901 (1902) (compiled).

— Jordan and Seale, Bull. Bur.

Fisher., vol. 26, p. 10, 1906 (1907).

(Iloilo; Cavite). — Evermann and Seale,

(Proc. U. S. Nat. Mus., vol. 28, p. 773, 1905 (regress)).

Bull. Bur. Fisher., vol. 26, p. 57, 1906 (1907) (Bacon). — Seale and Bean, Proc. U. S. Nat. Mus., vol. 33, p. 240,

1907 (Zamboanga). — Jordan and

Richardson, Bull. Bur. Fisher.,

vol. 27, p. 246, 1908 (Cuyo). — Seale,

Philippine Journ. Sci., vol. 5, no. 4,

p. 269, October 1910 (Sandakan). —

Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 95, 1913 (reference).

— Weber, Siboga Exped., vol. 57, Fische, p. 118, 1913 (Atjaturning, west coast of New Guinea).

Xerranus chlorostigma Valenciennes.

Xerranus chlorostigma Valenciennes, Hist.

Nat. Poiss., vol. 2, 1828, p. 352. Seychelles.

— Günther, Cat. Fishes. Brit. Mus., vol.

1, 1859, p. 151 (copied). — Elera, Cat.

Fauna Filip., vol. 1, 1895, p. 463 (Luzon,
Manila).

Gasterotokeus (Syngnathus)

biaculeatus Guichenot, Mem. Soc.
Sci. Cherbourg, ser. 2, vol. 2, p. 148,
1866 (Madagascar).

Syngnathoides biaculeatus Mc

Weber and Beaufort, Fish. Indo Austral.

Archip., vol. 4, p. 40, fig. 18, 1922 (Pulu
Weh; Nias; Bintang; Balikpapan and
East coast, Borneo; Celebes; Selayar;
Biaru; Siau; Matjan; Manipal; Ambon;
Musa Laut; Ceram; Ternate; Halmahera;
Waigiu; West Doffer).

Samoa; Hawaiian Islands). —

Chu, Biol. Bull. St. John's Univ.,

No. 1, p. 98, January 1931 (reference).

— Fowler, Mem. Bishop Mus., vol. 11,

No. 5, p. 323, 1931 (Honolulu).

— McCulloch, Mem. Austral. Mus., vol. 5,

pt. 1, p. 93, June 29, 1929 (reference).

Gasterotokeus (Syngnathus)
biaculeatus Guichenot, Mem. Soc.
 Sci. Cherbourg, ser. 2, vol. 2, p. 148,
 1866 (Madagascar).

Syngnathoides biaculeatus ✓ McCulloch
and Whitley, Mem.
 Queensland Mus., vol. 8, pt. 2, p.
 137, July 7, 1925 (reference). —
Fowler, Mem. Bishop Mus., vol.
 10, p. 110, 1928 (Ascension Island;
 Samoa; Hawaiian Islands). —
Chu, Biol. Bull. St. John's Univ.,
 No. 1, p. 98, January 1931 (reference).
 — Fowler, Mem. Bishop Mus., vol. 11,
 No. 5, p. 323, 1931 (Honolulu).
 — McCulloch, Mem. Austral. Mus., vol. 5,
 pt. 1, p. 93, June 29, 1929 (reference).

inner row hinged; bands of small teeth on vomer and palatines, none on tongue; hind nostril little larger than front one though not over twice its size; interorbital $6\frac{1}{3}$ to $6\frac{2}{3}$ in head, little convex; hind preopercle edge minutely serrated, serrae little larger at angle; opercle with 3 spines, upper most advanced and lower closer to median. Gill rakers $7 + 16$, lanceolate, longer than gill filaments or $1\frac{3}{4}$ in eye; 4 upper and 4 lower rudimentary.

Scales 103 to 110 in lateral line to caudal base and 12 to 15? more on latter; tubes 50 or 51 in lateral line to caudal base and 3 or 4 more on latter; 20 to 24 scales above lateral line, 33 to 36 below,

Syngnathus hippocampus (part)
Linnaeus, Syst. nat., ed. 10, pt. 1, p.
 338, 1758 ("in Pelago"); ed. 12, pt.
 1, p. 417, 1766 (copied). — Gmelin,
 Syst. nat. Lin., pt. 1, p. 1789, p. 1457.
 — Lacépède, Hist. nat. Poiss., vol. 2,
 p. 46, 1798.

Syngnathus tetragonus Thunberg,
 Phys. Sölsk. Handling., vol. 1, p. 301,
 pl. 4, figs. 1-2, 1789 (type locality,
 East Indies).

— Gmelin, Syst. nat. Lin., pt. 1, p.
 1453, 1789, (copied). — Lacépède, Hist. nat.
 Poiss., vol. 2, pp. 46, 156, 1803, (copied).

Pillot, Hist. nat. Poiss. Lacépède,
 p. 138, 1835.

Hippocampus tetragonus Cloquet,
 Dict. Sci. nat., vol. 21, p. 179, 1821.

— Forster, Fauna Indica, p. 10, 1795 (copied).

Depth $2\frac{7}{8}$ to $3\frac{1}{8}$; head $2\frac{2}{5}$ to $2\frac{3}{5}$, width $1\frac{7}{8}$ to $2\frac{2}{5}$. Snout $3\frac{3}{5}$ to $3\frac{7}{8}$ in head from snout tip; eye $6\frac{1}{3}$ to $6\frac{3}{5}$, $1\frac{3}{5}$ to $1\frac{4}{5}$ in snout, greater than interorbital in young to $1\frac{1}{5}$ in interorbital with age; maxillary reaches $\frac{1}{3}$ in eye or till opposite hind eye edge, expansion $1\frac{1}{8}$ to $1\frac{1}{5}$ in eye, length $2\frac{1}{5}$ to $2\frac{1}{4}$ in head from snout tip; teeth fine, conic, in bands in jaws; outer maxillary row of teeth slightly enlarged, pair of small wide set front canines, often double and inner row of teeth depressible with inner anterior longest; mandibular teeth with pair of small front canines, often double, other teeth in 3 or 4 series anteriorly and becoming biserial laterally with

Syngnathoides blochii Bleeker,
 Natuurk. Tijds. Ned. Indië, vol. 2,
 p. (228) 259, 1851 (type locality,
 Banda, heira); vol. 3, p. 235,
 1852 (Amboina), p. 238 (Wahai);
 vol. 4, p. 133, 1853 (Ternate).

Solegnathus blochii Bleeker, Verh.
 Batavia. Genoot. (Trosk.), vol. 25, p.
 24, 1853 (Batavia, Amboina, Banda,
 Ceram, Ternate, Halmaheira, Solor);
 Natuurk. Tijds. Ned. Indië, vol. 4, p.
 596, 1853 (Halmaheira); vol. 5, p. 321,
 1853 (Amboina); vol. 6, p. 51, 1854
 (Sandangole, Halmaheira), p. 90
 (Banda, heira), pp. 458, 459
 (Amboina); vol. 7, p. 227, 1854
 (Macassar).

1216

(Malay Archipelago; North Celebes). —

Wash., vol. 19, June 4, 1906, p. 77

(Rio Grande, Mindanao). — Weber,

Siboga Exped., vol. ^{57, Rische.} 65, 1913, p. 203

(Mabassar). — Fowler, Copeia, No. 58,

June 18, 1918, p. 63 (Philippines).

Plectropoma kulas Thollière, Fauna
Woodlark, 1857, p. 145. Woodlark Island.

Serranus longispinus Kner, Reise
Kovara, Zool., vol. 1, no. 5, 1865, p. 275,

pl. 2, fig. 5. Madras. — Playfair,

^{no} fishes of Zanzibar, 1866, p. 10 (Zanzibar)

Veranus medurensis Günther, Journ.

Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 8, pl.

9, fig. A. Meduro and Marshall Islands.

Serranus howlandi Günther Journ. Mus.

Depth $17\frac{1}{5}$ to $18\frac{4}{5}$, body with $12\frac{2}{5}$ to 14; head $5\frac{1}{5}$ to $5\frac{2}{5}$, width $4\frac{1}{4}$ to $4\frac{3}{4}$. Snout $1\frac{3}{5}$ to $1\frac{2}{3}$ in head from snout tip; eye $6\frac{4}{5}$ to 7, $4\frac{3}{5}$ to $4\frac{2}{3}$ in snout, greater than interorbital anteriorly; interorbital $1\frac{1}{5}$ to $1\frac{1}{3}$ in eye; opercle radially striated, without beel.

Rings 15 to 17 + 40 to 54. Shields transversely striated, absent in posterior half or third of tail and ventrally in some preceding rings. Skin often with numerous longer or shorter branched filaments formed at chin pair of branched barbels.

d. 37 to 50, origin nearly opposite vent, on 1 or 2 + 8 to 10 rings; a. rays 4 to 6; pectoral

(pockets)

Scales 25 or 26 in lateral line to caudal base and 2 more on latter, 2 above, 7 below, 5 or 6 predorsal, 2 or 3? rows on cheek. Tubercles large, each well exposed, simple, without basal scale; soft dorsal, anal and caudal all more or less finely scaled. Scales cycloid, very caducous; with 8 basal radiating striae; ~~and~~ circuli fine.

D. IX - I, 8, I or 9, I, third spine $2\frac{1}{8}$ to $2\frac{1}{2}$ in total head length, first branched ray $2\frac{7}{8}$ to 3; A. II, 6, I, or 7, I, second spine $4\frac{7}{8}$ to $5\frac{1}{2}$, first branched ray $2\frac{2}{3}$ to 3; caudal $1\frac{3}{5}$ to $1\frac{4}{5}$, well forked, lobes sharply pointed; least depth of caudal peduncle $3\frac{3}{4}$ to $4\frac{1}{8}$; pectoral $1\frac{4}{5}$ to $2\frac{1}{8}$; ventral $1\frac{7}{8}$ to 2, front edge of spine with anterior serrae but all other fin spines smooth.

Brown, with more or less dusky above, sides and below silvery white sprinkled with dusky gray, also with mauve

rays 20 to 23, fin $1\frac{1}{5}$ to $1\frac{1}{3}$ in eye.

Brown, paler below. ~~Bluish~~
Often dark brown spots in each
suture of lower trunk keel.
Pale green or brown, dark
spots ventrally along median
keels of trunk. Female
somewhat shorter than male.
Length 260 mm.

Red Sea, Zanzibar, Mozambique,
Madagascar, Seychelles, India,
Ceylon, Andamans, Malaya,
East Indies, Philippines, Siam,
~~China, Formosa,~~
Japan, Australia, Polynesia.

Depth $3\frac{3}{4}$ to 4; head $2\frac{2}{5}$ to $2\frac{3}{5}$, width
 $2\frac{3}{4}$ to $2\frac{4}{5}$. Snout 4 to $4\frac{1}{2}$ in head from
 snout tip; eye $3\frac{1}{4}$ to 4, longer than snout
 in young to subequal with age, always
 greater than interorbital; maxillary reaches
 $\frac{2}{5}$ to $\frac{1}{2}$ in eye, expansion 2 in eye,
 length $2\frac{1}{2}$ to $2\frac{3}{5}$ in head; teeth minute,
 in villiform bunch in jaws, on vomer
 and palatines, pair of rather long upper
 front canines, greatly smaller closer
 front lower pair and 3 large lateral
 canines in each mandibular ramus;
 interorbital $4\frac{1}{2}$ to $5\frac{2}{5}$, depressed;
 preopercle ridge with several denticles
 at angle, lower edge denticulate and
 hind edge entire; preorbital entire.
 Gill rakers 2 + 10, with 3 to 5 ^{more} very
 obsolete tubercles above and below,
 lanceolate, subequal with gill filaments
 and $\frac{1}{2}$ of eye.

12407, 12408. Bolalo Bay,
Palawan. December 21, 1908. Length
157 to 210 mm.

22616. Busin Harbor, Burias
Island. April 22, 1908. Length
135 mm.

21937. Cagayan, Sulu Island.
January 8, 1909. Length 175 mm.

One example. D. 5195. Capitanillo
Island Light, N. 11.75 miles (lat.
 $10^{\circ}47'N.$, long. $124^{\circ}06'30"E.$), off
northern Cebu. April 3, 1908.
Length 45 mm.

Two examples. Capulaan Bay,
Marinduque and vicinity. February
24, 1907. Length 108 to 140 mm.

Three examples. Capunaypuyan,
Mindanao. May 9, 1908. Length
143 to 233 mm.

Synagrops philippinensis (Günther).

Aeropsoma philippinense Günther, Rep. Voy. Challenger, vol. 1, 1880, p. 51. Philippines, in 82 to 102 fathoms. — Alcock, Journ. Asiat. Soc. Bengal, vol. 62, pt. 2, 1894, p. 116.

Synagrops philippinense Alcock, Journ. Asiat. Soc. Bengal, vol. 65, pt. 2, 1896, p. 311 (Indian coast, 60 to 100 fathoms).

Synagrops philippinensis Regan, Journ. Bombay Nat. Hist. Soc., vol. 16, no. 2, 1905, p. 329 (Sea of Oman, 170 fathoms).

Parascombrops pellucidus Alcock, Journ. Asiat. Soc. Bengal, vol. 58, pt. 2, 1889, p. 296, pl. 22, fig. 1. Sixteen miles east of River mouth off Mahamaddi delta, in 68 fathoms and N. Lat. $20^{\circ}18'E$. Long. $90^{\circ}50'$ in 65 fathoms (Bengal Bay).

Synagrops natalensis Gilchrist, Fisher. Marine Biol. Surv. Rep., no. 2, 1921 (1922), p. 69. Off South Africa, in 233 fathoms.

7517. Cotabato, Mindanao.

1453

May 20, 1908. Length 198 mm.

Male with eggs.

Three examples. Cebu market.

April 4, 1908. Length 185 to 175 mm.

8558. Cebu market. April 5, 1908. Length 143 mm.

Two examples. Cebu market.

March 22, 1909. Length 145 to 242 mm.

Larger male with abdominal egg cluster.

8168 [1863]. Cebu market.

August 29, 1909. Length 238 mm.

Six examples. Cebu market.

September 3, 1909. Length 162 to 175 mm.

One example. D. 5177. Escarceo Light, S. 53° E., 5.80 miles (lat. 13° 35' N., long. 120° 54' 36" E.), Verde Island Passage. Like Weber and Beaufort's figure 19.

699

[D. 3518] 3 examples. Point Tagolo
Light, S. 64° W., 8.7 miles ($8^{\circ}48'N.$,
 $123^{\circ}31'E.$), northern Mindanao.
August 9, 1909. In 200 fathoms.
Length 97 to 124 mm.

[D. 5374] 2994. Jagabas Light.
(outer), N. 9° E., 7.4 miles ($13^{\circ}46'45''N.$,
 $121^{\circ}35'08''E.$), Marinduque Island.
March 2, 1909. In 190 fathoms. Length
185 mm.

[D. 5617] 4 examples. Ternate Island
(S.E.) S. 45° W., 7 miles ($8^{\circ}49'30''N.$,
 $127^{\circ}25'30''E.$). November 27, 1909.
In 131 fathoms. Length 64 to 67 mm.

21153. Mansalay, Mindoro.

June 4, 1908. Length 135 mm.

One example. Hogas Point,
Panay. February 3, 1908. Length
118 mm. to end of broken tail.

22242. Pandanon Island.

March 23, 1909. Length 165 mm.

^{Two}
~~One~~ examples. ^[1465.] Pandanon Island.

March 24, 1909. Length ^{90 to} 168 mm.

18707 to 18710. Port Jumelo, Luzon.

July 13, 1908. Length 192 to 220 mm.

20962 to 20964. Port Matalvi,
Luzon. Length 185 to 202 mm.

Nine examples. Port Matalvi.

November 23, 1908. Length 145 to 172 mm.

Fifteen examples. Port San
Vicente, Luzon side. November 18,
1908. Length 138 to 200 mm.

22580, 22581. Romblon Harbor.

March 25, 1908. Length 143 to 175 mm.

[D. 5538] 2967. Apo Light, S. 64° W., 7.3 miles ($9^{\circ} 08' 15''$ N., $123^{\circ} 23' 20''$ E.), between Negros and Siquijor. August 19, 1909. In 256 fathoms. Length 165 mm.

[D. 5366] 1433. Escarceo Light, S. 5° E., 7.7 miles ($13^{\circ} 39'$ N., $120^{\circ} 58' 30''$ E.), Batangas Bay, Luzon. February 22, 1909. In 240 fathoms. Length 190 mm.

[D. 5280] 10118. Malabuan Island (I.), S. 60° W., 6.10 miles ($13^{\circ} 55' 20''$ N., $120^{\circ} 25' 55''$ E.), vicinity southern Luzon. July 17, 1908. In 193 fathoms. Length 156 mm.

[D. 5523] 1 example. Point Tagolo Light, S. 40° W., 6.7 miles ($8^{\circ} 48' 44''$ N., $123^{\circ} 27' 35''$ E.), northern Mindanao. August 10, 1909. Length 112 mm.

20904. San Miguel Harbor,
Ticao Island. April 21, 1908.

Length 150 mm.

20301 to 2030⁴3. Santa Cruz Island,
Marinduque. April 24, 1908. Length
126 to 15¹⁷⁵~~47~~ mm.

9543, 20890, 20891. Santiago
River, Pagapas Bay, Luzon. February
20, 1909. Length 162 to 215 mm.

20622. Herinao Island, Kaboda
Bay near Alfonso XIII. December 30,
1908. Length 247 mm.

21786. Tara Island. December
15, 1908. Length 132 mm.

Six examples. D. 5561. Tomabal
Island (NW.), S. 36° W., 0.2 mile (lat.
5° 50' 45" N., long. 121° 01' 15" E.), Zolo
Island and vicinity. September 19, 1909.
Length 75 to 120 mm.

pectorals paler to whitish. Smaller
examples with lighter and more
silvery white on sides and below.

East Indies, Japan, Micronesia,
Hawaii.

Three examples. Varadero Bay.
July 23, 1908. Length 135 to 160 mm.

One examples. West side San
Miguel Bay. June 14, 1909. Length
175 mm.

4386. D. 5595. Zamboanga Light
N. 31° W., 0.1 mile (Lat. $6^{\circ}54'00''$ N.,
long. $122^{\circ}04'30''$ E.), Mindanao.
October 7, 1909. Length 141 mm.

13312. Ambonia market.
December 7, 1909. Length 209 mm.

20392. Sandakan Bay, Borneo.
March 2, 1908. Length 175 mm. [361.]

5254. Sandakan Bay. March 21,
1908. Length 185 mm.

above, 5 or 6 below, 5 or 6 predorsal;
 3 rows on cheek, obscurely defined.
 Tubercles in lateral line very large,
 greatly exposed, broad, without
 basal scale; ^{all fins more or less scaly, at least basally.} scales cycloid, very caducous;
 with 5 to 13 basal radiating striae; circuli fine.
 D. IX - I, 1, ±. Third spine $1\frac{4}{5}$ to
 $1\frac{9}{10}$ in total head length, first branched
 ray $2\frac{2}{5}$ to $2\frac{2}{3}$; A. IV, 7, ±, second spine
 $4\frac{1}{2}$ to $5\frac{1}{2}$, first branched ray $2\frac{2}{3}$ to $2\frac{4}{5}$;
 caudal $1\frac{2}{5}$ to $1\frac{1}{2}$, forked, slender lobes
 pointed; least depth of caudal peduncle
 $3\frac{1}{2}$ to 4; pectoral $1\frac{2}{5}$ to $1\frac{2}{3}$; ventral $1\frac{4}{5}$
 to $1\frac{7}{8}$.

Rather deep amber brown with slight
 mauve tint, lower surface of head
 and body with dull silvered tint
 all more or less soiled with dark
 brownish, also with some lavender or
 purplish reflections. Iris with brassy
 or dull golden. Fins all dull brownish,

1457

Genus Solenognathus Swainson

Solenognathus Swainson, Nat. Hist. Animals, vol. 2, p. (195) 333, 1839.
(Type Syngnathus hardwickii Gray, monotypic.)

Solenognathus Kaup, Archiv Naturges., vol. 19, pt. 1, p. 230, 1853. (Type Syngnathus hardwickii Gray.)

Solenostomus Günther, Cat. Fish. Brit. Mus., vol. 8, p. 516, 1870 (error).

Solengognathus Saville-Kent, Naturalist in Australia, p. 186, 1897. (Type Syngnathus hardwickii Gray.) (Error.)

Castelnauina Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 426, 1907 (1908).
(Type Solenognathus spinosissimus Günther, orthotypic.)

Body compressed, higher than wide, nearly hexagonal. Tail prehensile, equal to or much less than trunk. Head in line with body axis or forming obtuse angle only. Opercle with radiating lines or edges, which smooth, granulated or rough. Shields hard, radially rugose or with radiating lines of well developed spines and with stronger one in center. Tail rings with or without cutaneous excrescences on inferior surface. Edges of rings rough or spiny. Intermedial shields present as also 2 nuchal shields, prenuchal present or absent. Upper keels of trunk and tail discontinuous, lower keels continuous, median and keels of trunk and upper of tail

11, little convex; preopercle edge with low serrae, those at angle most developed; opercular spines 3, lower little closer to median than latter to upper, which most advanced. Gill rakers $6 + 14$, lanceolate though robust, slightly longer than gill filaments or $2\frac{1}{2}$ in eye; 5 above and 6 below rudimentary.

Scales 95 to 115 in lateral line to caudal base and 10 to 12 more on latter; tubes 45 to 80 in lateral line to caudal base and 2 or 3 more on latter; 13 to 15 scales above lateral line, 26 to 28 below, 70 to 74 predorsal, 43 to 45 obliquely across cheek from eye to preopercle angle; fins all with minute scales over greater basal portions; only upper fourth of maxillary sealed, with 8 transverse

continuous, exceptionally discontinuous.
Eggs large, isolated in open cells
belonging to ventral surface of
front part of tail. Dorsal on front
10 to 12 caudal rings, base not
elevated. Anal and pectorals
present. Caudal absent.

Indo-Australian region to
China and New Zealand. One
species as Solenognathus
asperimus Philippi also described

'Ann. Univ. Chile, vol. 93, p. 384,
1896.

from Chile.

Depth $2\frac{4}{5}$ to $3\frac{1}{3}$; head $2\frac{1}{3}$ to $2\frac{2}{5}$, width $2\frac{1}{5}$ to $2\frac{2}{5}$. Snout $4\frac{1}{4}$ to $4\frac{3}{5}$ in head from snout tip; eye $3\frac{1}{2}$ to 5, $1\frac{1}{8}$ in snout with age but greater than snout in young; greater than interorbital at all ages; maxillary reaches $\frac{3}{4}$ in eye or to its hind edge, expansion $1\frac{2}{3}$ to 2 in eye, length $2\frac{1}{8}$ to $2\frac{1}{3}$ in head from snout tip; teeth in villiform bands in jaws, at least anteriorly, with some inner front ones elongated and hinged; outer upper teeth slightly larger than inner and front pair of wide set canines; lower pair of closer front canines and teeth becoming triserial laterally with innermost row longest; bands of villiform teeth on each palatine and vomer, none on tongue; interorbital 10 to

Analysis of Species

1459

Castelnauianus

a.¹ Lateral row of trunk scutes merges with those of upper caudal edge behind dorsal fin.

b.¹ Tail depth behind dorsal 4 or more in fin base; snout depth 6 or more in its length.

c.¹ Orbit less than 4 in snout.

d.¹ Rings convex, intensely spiny.
spinosissimus.

d.² Rings almost flat, 1 spine to each.
fasciatus.

c.² Orbit more than 4 in snout.

b.² depth ^{of tail} behind dorsal 3 in fin.
guntheri.
base; scutes slightly convex, with rows of spines radiating from stronger central spine on each.

e.¹ Snout depth 5 in its length.
robustus.

e.² Snout depth nearly 7 in its length.
lettiensis.

Solegnathus

a.² Lateral row of trunk scutes extending along sides of tail, not merging into upper row; scutes rugose, with scarcely any spine.
hardwickii.

Solegnathus spinosissimus (Günther)

Solenognathus spinosissimus Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 195, 1870

(type locality, Tasmania). — Hutton,
Fish. New Zealand, p. 69, 1872.

Archiv Naturges., vol. 38, pt. 1, p. 44, 1872 (Port Phillip);
Klunzinger, Sitzs. Ber. Akad. Wiss.

Wien, vol. 80, pt. 1, p. 420, 1879 (1880)

(Port Philip). — Macleay, Proc.

Lin. Soc. New South Wales, vol. 6,

pt. 2, p. 30, 1882 (^{copied} ~~Tasmania~~). — Johnston,

Proc. Roy. Soc. Tasmania, p. 134,
1882 (1883) (^{p. 134 (Derwent)}).

— Ogilby, Cat. Fish.

New South Wales, p. 61, 1886 (Port

Jackson). — Waite, Proc. Lin. Soc.

New South Wales, ser. 2, vol. 9, p. 222,

pl. 17, figs. 5 to 8, 1895 (~~Massachusetts~~

~~Staff~~ ^{Wollongong}); Mem. Austral. Mus.,

vol. 4, pt. 1, p. 61, fig. 5, 1899

(off Botany Bay). — Duncker,

Fauna Südw. Austral. Michaelson

Gill rakers $7 + 13$ or 14 , little less than gill filaments, which $\frac{2}{5}$ of eye; upper 5 rudimentary.

Scales 73 to 75 in lateral line to caudal base and 10 to 12 more on latter; tubes 44 to 49 in lateral line to caudal base and 4 or 5 more on latter; 16 to 18 scales above lateral line, 25 to 28 below, 44 to 48 predorsal, 17 to 19 rows across cheek; body scales without small basal accessory scales; fins more or less minutely scaled basally; scales mostly very small and smooth on head, larger on cheek and opercle, lips and maxillary naked. Scales with 5 basal radiating striae; 17 to 25 apical denticles, in 4 or 5 transverse series; circuli moderate.

d. XI, 15, I, third spine $2\frac{1}{10}$ to $2\frac{2}{3}$

and Hartmeyer, p. 235, 1909 (Port Phillip;
Twofold Bay; Botany Bay).

— McCulloch, Biol. Res. Endeavour,
vol. 1, p. 27, 1911 (Shoalhaven Bight).
Muncker, Mitteil. naturh. Mus.
Hamburg, vol. 32, p. 65, 1914 (1916)
(South Australia; Tasmania; New
Zealand).

Solegnathus spinosissimus Ogilby,
Austral. Mus. Mem., vol. 2, p. 72,
1889 (Lord Howe Island). — Waite,
Rec. Austral. Mus., vol. 5, pt. 3,
p. 196, March 11, 1904 (reference);
Rec. Canterbury Mus., vol. 1, no. 1,
p. 14, April 25, 1907 (reference);
vol. 1, no. 4, p. 318, December 28, 1912
— McCulloch, Mem. Austral. Mus., vol.
5, pt. 2, p. 94, June 29, 1929 (reference).

Depth $2\frac{4}{5}$ to $3\frac{1}{6}$; head $2\frac{2}{5}$ to $2\frac{1}{2}$, width 2 to $2\frac{1}{2}$. Snout $4\frac{1}{4}$ to $4\frac{2}{3}$ in head from snout tip; eye $3\frac{3}{4}$ to $4\frac{2}{3}$, subequal with snout to greater in young, greater than interorbital; maxillary reaches $\frac{3}{4}$ in eye in young, beyond eye with age, expansion $1\frac{1}{3}$ to $1\frac{7}{8}$ in eye, length 2 to $2\frac{1}{5}$ in head from snout tip; teeth in narrow bands, pointed, outer row erect and 1 or more rows of inner depressible, biserial on sides of mandible; pair of front canines in each jaw, often double; small patch of fine teeth on vomer and palatines; interorbital 7 to $7\frac{2}{5}$, little convex; preopercle edge finely denticulate, ends in 2 strong spines below; opercular spines 3, upper anterior and obsolete.

Dorsal surface slightly convex;
orbital edge denticulated,
without prominent tubercles
above; radiating lines of opercle
spiny.

Rings 27 + 55; all parts
covered with small but very
distinct spines.

D. 35. Length 330 mm.
(Günther)

June 30

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Boopsidea Castelnau

Boopsidea Castelnau, mém. Piss.
Afrigue Australe, 1861, p. 25. Type

Boopsidea inornata Castelnau, monotypic.

mém. Piss. Afrigue Australe.
Boopsidea Castelnau, op. cit., p. 26. Type Boopsidea inornata Castelnau.

Eye large. Hind nostril oval. Both jaws
with one row of 8 to 10 rather small
unequal, sharply conic front teeth,
small and more granular ones at
sides; behind front teeth 2 or 3 rows
of small granular molars, hindmost
row large. Preorbital narrow, lower
edge straight. Gill rakers 16 below,
well developed. Pyloric coeca 4. Scales
minutely ctenoid. Cheeks scale, row 8 or
9. Preopercle flange, snout and
interorbital scaleless.

One species. Known chiefly by its small
molars, outer row of teeth conic and
without canines, forming innermost row
of a band of teeth.

Waite 1912 says "Fowler * *
proposed to make~~d~~ this species
the type of a new genus —
Castelnaudia. Seeing that the
component species of the genus
Solegnathus are so closely allied,
I cannot admit generic rank
for this species".

November 20, p. 316 (Kischin). — Fowler,
 Journ. Acad. Nat. Sci. Phila., ser. 2, vol.
 12, 1904, p. 524 (Padana). — Regan,
 Journ. Lin. Soc. London, ser. 2, vol. 12,
 1907, p. 222 (Haddamat, Maldives, in
 35 fathoms). — Seale, Philippine Journ.
 Sci., vol. 5, no. 4, 1910, p. 275 (Samalakan,
 Borneo). — Weber, Siboga Exped., vol. 65,
 Fische,
 1913, p. 205 (Saleyer).

Serranus diacanthus (part) Günther,
 Cat. Fishes Brit. Mus., vol. 1, 1859, p. 110
 (Lunisiaden).

Solegnathus fasciatus (Günther) 1464

Solenognathus fasciatus Günther,

Rep. Voy. Challenger, vol. 1, pt. 6, p. 30,
pl. 14, fig. B, 1880 (type locality,
Off Twofold Bay, New South Wales).

— Macleay, Proc. Linn. Soc. New
South Wales, vol. 9, pt. 1, p. 61, 1884 (compiled).

— Ogilby, Cat. Fish. Brit. New
South Wales, p. 61, 1886 (compiled).

— Waite, Proc. Linn. Soc. New South
Wales, ser. 2, vol. 9, pp. 220, 227, pl.
17, figs. 6 and 9, 1895 (note F —).

— McCulloch, Biol. Res. Endeavour,
vol. 1, p. 27, 1911 (South east from Babel
Island; Disaster Bay, New South
Wales).

9 Solegnathus fasciatus

; Mem. Austral. Mus., vol. 5, pt. 1, p. 94, June
29, 1929 (reference).

Peters, Arch. Naturg., 1855, p. 235
 (Mozambique). — Brevoort, ^{nav.} Narr. Exp.
 China Japan, vol. 2, 1856, p. 258, pl. 3, fig. 2
 (Simoda). — Günther, Cat. Fishes Brit.
 Mus., vol. 1, 1859, p. 135 (Amboyna, China,
 Japan, India, Louisades, Wamley
 Island, Copang, Timor). — Guichenot,
 Notes Ile Réunion, vol. 2, 1862, p. 23.
 — Kner, Reise Novara, Zool., vol. 1, pt. 5,
 1865, p. 24 (Java). — Playfair, Fishes
 of Zanzibar, 1866, p. 7 (Aden, Zanzibar,
 Johanna). — Peters, Monatsber. Akad.
 Wiss. Berlin, 1865, p. 109 (type). —
Meyer, Ann. Soc. Españ. Hist. Nat. Madrid,
 vol. 14, 1885, p. 9 (north Celebes; Cebu;
 Rubi, New Guinea). — Elera, Cat. Fauna
 Filip., vol. 1, 1895, p. 461 (Mindoro, Calapan,
 Panay, Iloilo).
Holocentrus erythraeus Schneider, Syst.
 Ichth. Bloch, 1801, p. 320. Red Sea.

Depth 15; head $6\frac{1}{2}$. Snout
 $1\frac{3}{4}$ in head from snout tip;
 eye $5\frac{4}{5}$, $3\frac{1}{2}$ in snout;
 forehead somewhat broad;
 opercle with radiating striae
 shown on posterior half.

Rings 27 + 55; rough
 spiny...

D. 41 on about about 10 or
 11 caudal rings; pectoral 5
 in total head length.

Back of trunk with 7
 narrow blackish cross bars.

Preanal region blackish.

Length 305 mm. (Günther.)

New South Wales.

case 129

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Sparus filamentosus (Valenciennes)

Sparus filamentosus Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 758. Saint-Denis, Bourbon; Malacca. $\frac{1}{n}$ Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 471 (Mauritius). $\frac{1}{m}$ Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 25. $\frac{1}{m}$ Lincl, Mémoires Soc. Physique Hist. Nat. Genève, vol. 27, 1881, p. 27 (Mauritius).

Depth $2\frac{1}{2}$ in total; head $3\frac{3}{4}$. Eye 3 in head, $1\frac{1}{5}$ in snout, little less than interorbital. Scales 54 in lateral line, 6 above, 15 below, 5 rows on cheeks to preopercle angle. D. XII, 10, first 2 spines very short, but projecting between scales, third very elongate, fourth less so, fifth not flexible; A. III, 8, second spine stronger and longer than third, length $2\frac{1}{2}$ in head. Uniform red, shining golden. Spinous dorsal violet. (Günther.)

Solegnathus guntheri (Duncker)
Solenognathus guntheri Duncker,
 Mitteil. Naturh. Mus. Hamburg,
 vol. 32, p. 65, 1915 (on Günther)
 (type locality, Houtman's Abrolhos,
 Western Australia). — McCulloch
 and Whitley, Mem. Queensland Mus.,
 vol. 8, pt. 2, p. 137, July 7, 1925
 (reference).

4 Solegnathus güntheri Weber and
Beaufort, Fish. Indo Austral.
 Archip., vol. 4, p. 67, fig. 29, 1922
 (Madura Strait; Houtman's Abrolhos).

north coast Kofian; Saleyer; Banda).
 — Beaufort, Bijdr. Dierk. Amsterdam,
 1913, p. 111 (Amboina). — Pellegrin,
 Bull. Soc. Zool. France, vol. 39, 1914, p.
 224 (Fort Dauphin, Madagascar). —

interorbital $6\frac{1}{2}$ to $6\frac{3}{4}$, very
 slightly convex; preopercle edge
 finely denticulate, several serrae
 little larger at angle; opercular
 spines 3, lower closer to median,
 uppermost most advanced. Gill
 rakers $8 + 14$, finely spinouscent,
 lanceolate, little longer than gill
 filaments or $2\frac{1}{4}$ in eye; 5 above
 and 5 below rudimentary.

Scales 83 to 94 in lateral line to
 caudal base and 12 to 15? more on
 latter; tubes 53 to 55 in lateral
 line to caudal base and 3 to 5 more
 on latter; 15 scales above lateral

1467
Solegnathus guntheri McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 94, June 29, 1929 (reference).

$\frac{1}{m}$ Károli, Termesz. Füzetek, Budapest,
 vol. 5, 1881, p. 157 (Nagasaki). $\frac{1}{m}$ Steindachner
and Döderlein, Denkschr. Akad. Wiss. Wien,
 math.-naturw. Classe, vol. 48, pt. 1, 1884, p.
 19 (Tokio, Ashima, Nagasaki); vol. 49, pt. 1,
 1885, p. 261 (Kochi harbor in 40 fathoms).
 $\frac{1}{m}$ Hystrom, Kon. Svenske. Vet. Akad. Handling.,
 Stockholm, vol. 13, 1887, no. 4, p. 14 (Nagasaki).
 $\frac{1}{m}$ Elera, Cat. Fauna Filipinas, vol. 1, 1895, p.
 483 (Luzon, Manila, Cavitas). $\frac{1}{m}$ Ishikawa
and Matsuura, Prelim. Cat. Fishes Mus.
 Tokyo, 1897, p. 53. $\frac{1}{m}$ Kishinouye, Journ.
 Fisherv. Bur. Tokyo, vol. 10, no. 3, 1901, p. 36,
 pls. 2, 5, 7, fig. 3 (Japan, Kiusiu, South
 Shikoku, Hondo, China, Korea). $\frac{1}{m}$ Jordan
and Snyder, Unnot. Zool. Japon., vol. 3,
 pts. 2-3, 1901, p. 79 (Yokohama, Nagasaki,
 Ashima). $\frac{1}{m}$ Jordan and Evermann, Proc. U.
 S. Nat. Mus., vol. 25, 1902, p. 350 (Formosa). $\frac{1}{m}$
Jordan and Starbs, Proc. U. S. Nat. Mus.,

Solenognathus hardwickii (not Gray)
Günther, Cat. Fish. Brit. Mus., vol.
 8, p. 195, 1870 (types ^{not} ~~or~~ ^{Abrakos} China; Houtman's).
 — Macleay, Proc. Linn. Soc. New South
 Wales, vol. 6, ^{pt. 2} p. 300, 1882 (part). —
Waite, Proc. Linn. Soc. New South
 Wales, ser. 2, vol. 9, p. 221, pl. 17,
 figs. 2 to 4, 7, 1895 (Port Jackson).

Solenognathus hardwickii Waite,
 Mem. New South Wales Nat. Club,
 vol. 2, p. 19, 1904 (diag. New South Wales);
McCulloch, Zool. Res. Endeavour,
 vol. 1, p. 28, 1911 (diagnosis in key);
 Australian Zoologist, pt. 2, vol. 2,
 p. 38, 1921;
 Austral. Zool. Handbook, vol. 1, p.
 28, 1922.

Epinephelus marginatus Bloch, Naturk.
Ausl. Fische, vol. 7, 1793, p. 14, pl. 328,
fig. 1. East Indian Seas. — Schneider,
Syst. Ichth. Bloch, 1801, p. 300 (East
Indies).

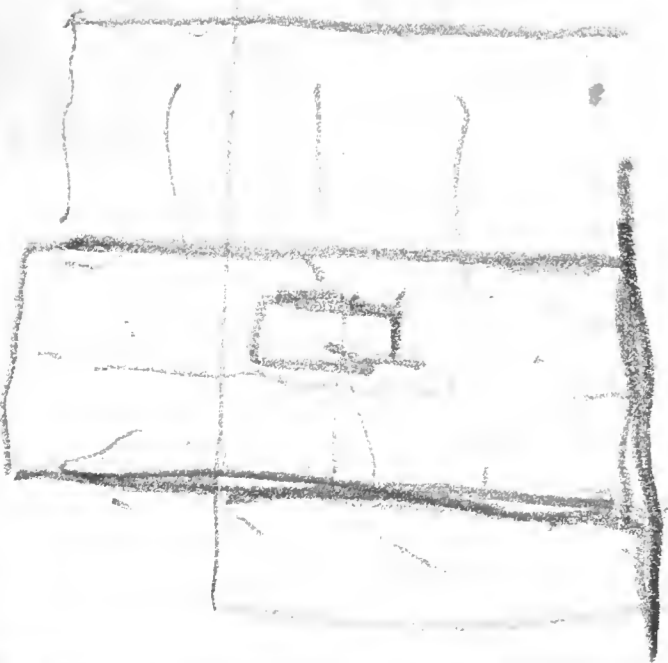
Serranus marginalis Valenciennes, Hist.
Nat. Poiss., vol. 2, 1828, p. 301 (Mauritius
and Seychelles). — Lay and Bennett, Zool.
Beechey's Voy. Fish, 1839, p. 52 (Loo
Choo). — Richardson, Ichth. China Jap.

~~and (Linn.) Valenciennes, l.c., 16,
vol. 2, p. 220, 296~~

~~Guichenot, Mem. Mus. Comp. Zool., 11,
1855, p. 65 (Linn.)~~

Serranus naevius Bleeker, Nat. Hist. Sci.
Ind. Néerl., (no. 2) 6, 1857, p. 3 (Doreh,
New Guinea).

Scorichthys caeruleopunctatus (non Rüpp-
ell) Kendall and Goldsborough,
Mem. Mus. Comp. Zool., 26, 1911, p.
304 (Barau, Tonga Islands).



Depth 19; head $5\frac{3}{5}$. Snout $\frac{1}{2}$ in head; eye 9 to $9\frac{2}{3}$, $5\frac{2}{3}$ in snout; orbital keel with spines, above and below, ^{former} anteriorly continued as serrate keel, both opposite rims converge and unite into spiny patch on hind half of snout; occiput elevated into broad blunt tubercle; interorbital concave, smaller than eye; lower half of opercle with terminally radiating short spiny lines.

Rings 23 or 24 + 53 to 56; trunk with dorsal surface flat, ventrally strongly convex last $\frac{2}{3}$ its length. Upper trunk keel ends below end of dorsal; median lateral trunk keel strong and continuous with upper caudal keel; scutella more or less oval with irregular transverse or radial blunt tubercles, which transversely arranged on scuta; in young scuta more spinous.

D. 42 to 46, on 11 or 12 caudal rings, fin longer than snout; A. 4; pectoral 22 to 26, equals eye.

Seven or eight rounded blackish patches at least broad as ring; 4 to 6 on trunk, first on about fourth or fifth ring; 1 on root of tail, 1 or 2 smaller ones behind. Length ~~368~~ ⁴⁷⁵ mm. (Weber and Beaufort.)

East Indies, Western Australia, New South Wales.

Solegnathus robustus McCulloch

Solegnathus robustus McCulloch,

Biol. Res. Endeavour, vol. 1,

p. 28, pl. 9, fig. 2, 1911 (type locality,
Flinders Island, South Australia,
37 fathoms). — Duncker, Mitteil.

Naturh. Mus. Hamburg, vol. 32, p.
66, 1914 (1915) (). —

Waite and Hale, Rec. South
Australian Mus., vol. 1, no. 4, p. 312,
fig. 50, January 29, 1921 (Corney Point;

↑ — Waite, Rec. South Austral. Mus.,
vol. 2, no. 1, p. 57, fig. 88, April 23, 1921
(reference).

Xolenognathus spinosissimus (not
Günther) Zietz, Trans. Roy. Soc. South
Australia, vol. 32, p. 299, 1908.

Solegnathus robustus McCulloch

Solegnathus robustus McCulloch,

Biol. Res. Endeavour, vol. 1,

p. 28, pl. 9, fig. 2, 1911 (type locality,
Flinders Island, South Australia,
37 fathoms). — Duncker, Mitteil.

Naturh. Mus. Hamburg, vol. 32, p.
66, 1914 (1915) (). —

Waite and Hale, Rec. South
Australian Mus., vol. 1, no. 4, p. 312,

fig. 50, January 29, 1921 (Corney Point;
Point Lincoln; Flinders Island). —

McCulloch, Mem. Austral. Mus., vol.
5, pt. 1, p. 94, June 29, 1929 (reference).

Solenognathus spinosissimus (not
Günther) Zietz, Trans. Roy. Soc. South
Australia, vol. 32, p. 299, 1908.

Family Sparidae Cuv 121

Body compressed, oblong roate, usually
somewhat elevated. Maxillary slips

in total head length, seventh ray $2\frac{1}{10}$ to $2\frac{1}{2}$; A. III, 8, I, second spine $2\frac{1}{2}$ to $3\frac{1}{5}$, fourth ray 2 to $2\frac{1}{2}$; caudal $1\frac{2}{5}$ to $1\frac{2}{3}$, convex behind; least depth of caudal peduncle $3\frac{1}{8}$ to $3\frac{2}{5}$; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$; ventral $1\frac{4}{5}$ to $1\frac{7}{8}$.

Brown, pale or whitish on lower surface of head and abdomen. Sides marked with 6 broad deep brown vertical bands and indistinct light brown blotches scattered about and mixed with few darker ones. Iris yellowish. Paired fins grayish and margins more or less blotched or spotted with brownish.

Kischiu, Maldives, India, East Indies, Philippines, China, Melanesia. Known chiefly by the large, strong spines at the preopercle angle. The coloration of the body is with

Depth 17; head $6\frac{2}{5}$, $3\frac{2}{3}$ in trunk. Tail little less than space between vent and pectorals. Snout $1\frac{2}{3}$ in head, depth nearly 5 in its length, less than eye; eye $4\frac{1}{10}$ in snout; interorbital little less than $\frac{1}{2}$ in eye.

Rings 26 + 50; with radiating lines of well developed spines, each with stronger flattened one in center; anteriorly on body central spines higher than broad, widely separated, before dorsal on midline broader, on tail more compact and almost form continuous keels. Head and prepectoral region with uniform upstanding spines, in radiating lines on opercles.

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eye, length $2\frac{1}{8}$ in head; teeth rather short, simple, conic, 3 or 4 series forward, narrowing to single series posteriorly and outer ~~and~~ forward series moderately and evenly enlarged; interorbital $3\frac{1}{2}$, slightly convex. Gill rakers $10+14$, lanceolate.

Scales 55 in lateral line to caudal base and 7 more on latter; 9 above, 15 below, 29 predorsal, 10 rows on cheek to preopercle ridge. Scales with 12 to 16 basal radiating striae, with 3 auxiliaries; 90 to 95 apical denticles, with 3 to 13 rows of basal segments transversely; circuli fine.

D. XI, 10, I, fifth spine $2\frac{1}{2}$ in head, last $3\frac{1}{8}$; A. III, 11, I, second spine $3\frac{1}{4}$, first ray $3\frac{1}{5}$; caudal 1, emarginate; least depth of caudal peduncle $2\frac{3}{5}$; ventral $1\frac{2}{3}$; pectoral 3 in combined

Last 30 caudal rings prehensile,
with fleshy excrescences on
inferior surfaces.

D. 34, on 10 trunk rings,
base length equals combined
snout and eye; pectoral rays
24 or 25.

Length 300 mm. (McCulloch.)
South Australia.

679

Can¹⁷⁹ Boopsidea inornata Castelnau

Boopsidea inornata Castelnau, Mém.

Poiss. Afrique Australe, 1861, p. 26.

Kalk Bay; Algoa Bay. $\frac{1}{m}$ Barnard,
Ann. South African Mus., vol. 21, pt. 2,
1927, p. 711 (False Bay, Agulhas Banks,
East London, 33 fathoms).

Pagrus (Chrysophrys) holubi Steindachner,
Sitz. Ber. Akad. Wiss. Wien, Math.-

Naturw. Klasse, vol. 82, pt. 1, 1881, p. 203,
pl. 2. Algoa Bay.

Pagrus holubi Thompson, Mar. Biol. Rep.
South Africa, no. 4, 1918, pp. 88, 94.

Sparus holubi Fowler, Proc. Acad. Nat. Sci.
Philadelphia, 1925, p. 236 (Natal coast).

Depth $2\frac{1}{8}$; head $3\frac{1}{3}$, width $1\frac{5}{6}$.

Snout $3\frac{1}{3}$ in head; eye $2\frac{3}{4}$, greater
than snout or interorbital; maxillary
reaches in eye, expansion $3\frac{1}{6}$ in

1474

Solegnathus lettiensis Bleeker

Solenognathus lettiensis Bleeker,
Act. Soc. Sci. Ind. Néerl.
(Amboina), vol. 8, p. 3, 1860 (type
locality, Letti, Amboina)...

— Dumeril, Hist. Nat. Poiss., vol.
2, p. 530, 1870 (compiled). —

Duncker, Mitteil. Naturh. Mus.
Hamburg, vol. 32, p. 66, 1914 (1915)
(compiled).

↑ Solenostomus lettiensis Günther, Cat.
Fish. Brit. Mus., vol. 8, p. 516, 1870
(reference).

Weber and Beaufort, Fish. Indo Austral.
Archip., vol. 4, p. 66, fig. 28, 1922 (type).

1474

Solegnathus lettiensis Bleeker

Solenognathus lettiensis Bleeker,
Act. Soc. Sci. Ind. Néerl.
(Amboina), vol. 8, p. 3, 1860 (type
locality, Letti, Amboina)...

— Dumeril, Hist. Nat. Poiss., vol.
2, p. 530, 1870 (compiled). —

Duncker, Mitteil. naturh. Mus.
Hamburg, vol. 32, p. 66, 1914 (1915)
(compiled).

Solegnathus lettiensis Fowler, Mem.
Bishop Mus., vol. 10, p. 112, 1928
(compiled).

Weber and Beaufort, Fish. Indo Austral.
Archip., vol. 4, p. 66, fig. 28, 1922 (type).

its margin or outer half of fun
yellowish and its edge narrower
blackish. Iris brown. Horn with 6
weak underlaid or obscure transverse

1272

Serranus fasciatus (Forskål).

Perca fasciata Forskål, Descript. Animal,
1775, pp. 11, 40. Red Sea at Cape Mohammed.

— Bonnaterre, Tabl. Ichth., 1788, p. 131
(Red Sea). — Houttuyn, Verh. Holl.
Maatsch. Haarlem, vol. 20, 1782, p. 326
(Japan).

— Gmelin, Syst. Nat. Linn., ^{vol. 1,} 1789, p. 1316
(Red Sea). — Walbaum, Arted. Pisc.,
vol. 3, 1792, p. 346 (on Forskål).

Serranus fasciatus Klunzinger, Verh.
zool. bot. Ges. Wien, vol. 20, 1870, p. 681
(Koseir, Red Sea). — Günther, Journ.

Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 6, pl. 6
(~~Society Islands; Tuamotus~~; Red Sea;
East Africa; Indian Ocean; China; North
Australia; Society Islands; Tuamotus).

— Day, Fishes of India, vol. 1, 1875, p.

1475
Solenostomus paradoxus (not Pallas)
Kaup, Cat. Lophobr. Fish Brit. Mus.,
p. 2, 1856 (New Guinea).

6 dark transverse bands - all marked with yellowish spots. The vertical fins are marked with large, contrasted, rounded black spots. According to Boulenger reaches 230 mm.

12832. Cavite and San Roque markets. June 27, 1908. Length 82 mm.

3252, 4066 to 4068 ^[D. 5360]. Corregidor Light, N. 74° W., 6.9 miles ($14^{\circ}21'N.$, $120^{\circ}41'E.$), Manila Bay. February 8, 1909. Length 62 to 83 mm.

4201 [D. 5361]. Corregidor Light, S. 89° W., 7.2 miles ($14^{\circ}24'15"N.$, $120^{\circ}41'30"E.$), Manila Bay. February 8, 1909. Length 90 mm.

22469. Manila market. May 2, 1908. Length 103 mm.

21209. Manila market. December 4, 1908. Length 91 mm.

1476

Depth $15\frac{1}{2}$; head $6\frac{1}{3}$. Snout $1\frac{1}{2}$
in head from snout tip; eye 8,
 $5\frac{1}{4}$ in snout; conical tubercle
before eye; occiput posteriorly
and orbits with rough tubercles;
opercle radially roughly rugose.

Rings 22 or 23 + 50 or 51;
with radial rugosities, edges
slightly elevated, rough and
partly with conical tubercle.

Tail long as trunk.

D. 35 or 36, on 10 caudal rings;
A. 4; pectoral 26 or 27, long as
eye.

Yellowish brown. Rings dorsally
with single brown spot. Tail with
7 or 8 broad diffuse bands. Length
312 mm. (Weber and Beaufort)

Letti, Banda Sea.

Solegnathus hardwickii (Gray)

Syngnathus hardwickii Gray, Illustr.
Indian Zool. Hardwicke, vol. 1, pl.
89, fig. 3, 1832 (type locality, "India"
[= China]).

Syngnathus hardwickii Richardson,
Ichth. China Japan, p. 202, 1846
(China) ^(Indian Ocean; China Sea)
Kaup, Cat. Lophobr. Fish Brit. Mus., p. 20, 1856

Solenognathus hardwickii Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 195,
1870 ^{type;} (China). — Duméril, Hist. nat.
Pois., vol. 2, p. 530, 1870 (compiled).
— Bleeker, Nederl. Tijds. Dierk.,
vol. 4, p. 126, 1873 (1874) (reference).

Holocentrus forskael Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 337, 377. Arabia.

Holocentrus marginatus Lacépède, Hist. Nat. Poiss., vol. 4, ^{1802,} pp. 342, 384. No locality.

Holocentrus roemarus Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 345, 389, pl. 7, fig. 2.

The Great Ocean [Indo Pacific].

Holocentrus oceanicus Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 345, 389, pl. 7, fig. 3.

The Great Ocean [Indo-Pacific].

Serranus oceanicus Valenciennes, Hist. Nat. Poiss., vol. 2, 1822, p. 302. Mauritius and

— Elera, Cat. Fauna Filipinas, vol. 1,
p. 598, 1895 (Luzon; Cavite; Santa
Cruz).

— Uncker, Fauna Sudo. Austral.
Michaelson and Hartmeyer, vol. 2, pt.
1, p. 235, 1909 (compiled); Mitteil.
Naturh. Mus. Hamburg, vol. 32,
p. 64, 1914 (1915) (China).

Syngnathoides hardwickii Chu,
Biol. Bull. St. John's Univ., no. 1,
p. 98, January 1931 (reference).

? Syngnathus barbarus Linnaeus,
Syst. Nat., ed. 10, pt. 1, p. 337, 1758
(type locality, "in Pelago");

ed. 12, pt. 1, p. 417, 1766 (copied).
— Bonnaterre, Tabl. Ichth., p. 31, pl. 25, fig. 74, 1788.
— Gmelin, Syst. Nat. Linnaeus,

vol. 1, p. 1457, 1789 (copied).

— Walbaum, Artedj Pisc., vol. 3, p. 8, 1792 (copied).

— Lacepede, Hist. Nat. Poiss., vol.

2, p. ⁴⁸¹165, 1803 (compiled).

— Schneider, Syst. Ichth. Bloch, p. 516, 1801 (copied).

— Shaw, General Zool., vol. 5, p. 455,

1804 (compiled). — Desmarest,

Hist. Nat. Poiss., vol. 3, p. 140, 1835.

- Akad. Wet. Amsterdam, vol. 18, no. 3,
 1879, p. 1 (Mauritius). — Sauvage, Hist.
 Nat. Madagascar, Poiss., 1891, p. 78. —
Boulenger, Cat. Fishes Brit. Mus., vol. 1,
 1895, p. 238 (Cebu, Red Sea, Zanzibar,
 Seychelles, Singapore, China, Riu Kiu,
 Japan, Amboina, Copang, Louisades,
 Bonham Island, Darwin Island, Tahiti?).
~~Gordon and Snyder, Proc. U.S. Nat. Mus., vol. 3, 1901, p. 354 (Tokyo, Amoy,
 Zool. Japon., vol. 3, 1901, p. 74 (Nagasaki, Minagata, Yabudama, Kishi)).~~
 — Regan, Journ. Linn. Soc. London, vol. 12,
 ser. 2, 1907, p. 222 (Coetiv, Seychelles Group).
 — Steindachner, Denks. Akad. Wiss.
 Wien, vol. 71, pt. 1, 1907, p. 127 (Bal Häf,
 Socotra). — Evermann and Seale, Bull.
 Bur. Fisher., vol. 26, 1906 (1907), p. 75
 (Bacon). — Seale and Bean, Proc. U.S.
 Nat. Mus., vol. 33, 1907, p. 242 (Zamboanga).
 — Gilchrist and Thompson, Ann. South
 Afr. Mus., vol. 6, 1908-10, p. 223 (Durban).
 — Weber, Siboga Exped., vol. 65, ^{52 Fische} 1913, p. 204
 (Sanguisapo Vulu and Vulu Archipelago;

14782

Solepognathus polyprion Bleeker,
Verh. Batavia. Genoot. (Trosk.),
vol. 25, p. 25, 1853 (type locality,
"Sina"),

Act. Soc. Sci. Ind. Néerl. (Sumatra),
vol. 8, p. 73, 1859 (China). ~~not~~

Duméril, Hist. Nat. Poiss., vol. 2,
p. 529, 1870 (China; Mauritius).

Solenognathus polyprion

15, pl. 3, fig. 2 (Andaman Islands).

— Klunzinger, Fische Roth. Meer., 1884, p. 6. — Day, Fauna Brit. India, vol. 1, 1889, p. 449. — Thurston, Notes Pearl Fisher. Manaar, 1890, p. 91 (Tamban). — Fowler, Proc. Acad. Nat. Sci. Phila., 1925, p. 223 (Natal). — Fowler and Ball, Bishop Mus. Bull., no. 26, 1925, p. 14 (Wake Island). — Fowler, Bishop Mus. Bull., no. 38, 1927, p. 13 (Jarvis Island).

Serianus (Epinephelus) fasciatus Jugmayer, Abhandl. Bayer. Akad. Wiss., vol. 26, pt. 6, 1913, p. 10 (Mekran and Oman).

Epinephelus fasciatus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 66 (Sumatra, Java, Celebes, Sangi, Sumbawa, Flores, Timor, Ternate, Batjan, Timboina); vol. 8, 1876-77, pl. (48) 326, fig. 3.; Verh.

Dorsal surface of body slightly
concave or flat.

Rings 26 or 27 + 55 or 60; very
rough and rugose, with scarcely
any spines.

D. 43 to 45.

Opercle with radiating granulated
lines. Cluster of prominent
tubercles on hinder part of
superciliary edge.

(Günther.)

China, ~~Wester~~

682

cm¹³⁰ Genus Eynnus Jordan and Thompson
Eynnus Jordan and Thompson, Proc.
U. S. Nat. Mus., vol. 41, 1912, p. 573.
Type Sparus cardinalis Lacépède, orthotypic.

Vomer with few conic teeth in front.
Molars biserial. Preopercle limb naked.
Frontal bone spongy. Supraoccipital
crest extended well forward. Cheek
with 7 rows of scales. Top of head
scaly. Third and fourth dorsal
spines moderately elevated, not
greatly prolonged.
One species.

cm¹²⁹ Eynnus cardinalis (Lacépède)
Sparus cardinalis Lacépède, Hist. Nat.
Pois., vol. 4, 1802, pp. 46, 141. China.
Sparus (Pagrus) cardinalis Steindachner,
Ann. Naturh. Hofmus. Wien, vol. 11, 1876,
p. 200 (Japan).

1479

Genus Runcinatus Whitley

Runcinatus Whitley, Austral. Zool.,
vol. 5, pt. 4, p. 356, March 24, 1929.
(Type Solegnathus dunckeri
Whitley, orthotypic.)

Scutes rugose, with scarcely
any spines. Upper trunk keel and
upper caudal keel continuous.
Blackish stripe along dorsal
edges.

Differs from Solegnathus Swanson
in the continuous dorsal ridges
of trunk and tail, mediolateral
ridges expanded below dorsal fin
(at least in male) and end on
sides of tail.

1480

Runcinatus dunckeri (Whitley)

Solegnathus dunckeri Whitley,
Rec. Austral. Mus., vol. 15, no. 5,
p. 293, pl. 24, fig. 1, April 6, 1927
(type locality, Lord Howe Island).

Runcinatus dunckeri Whitley,
Austral. Zool., vol. 5, pt. 4, p.
356, March 24, 1929 (Grafton,
New South Wales).

Solegnathus (Runcinatus) dunckeri
McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 94, June 29, 1929
(reference).

1282

series of small scales. Scales with 4 to 7 basal radiating striae; 37 to 43 apical denticles, with 4 to 6 transverse series of basal elements, all denticles obsolete in young; 'circuli' fine.

D. XI, 16, I, third spine $2\frac{4}{5}$ to $3\frac{1}{2}$ in total head length, second ray $2\frac{1}{5}$ to 3; A. III, 8, I, second spine $2\frac{2}{5}$ to $3\frac{3}{5}$, third ray $2\frac{1}{5}$ to $2\frac{1}{5}$; caudal $1\frac{3}{5}$ to $1\frac{7}{8}$, truncate, rounded convexly as expanded; least depth of caudal peduncle $3\frac{2}{5}$ to 4; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$; ventral 2 to $2\frac{1}{5}$.

Light to dull brown in alcohol, usually with 6 or 7 transverse darker bands, wider than interspaces, though often obscure. Iris pale brown. Fins usually pale, like general body color. Spinous dorsal always with black spot on

Solenognathus hardwickii (not Gray
1830) Waite, Proc. Linn. Soc. New
South Wales, ser. 2, vol. 9, p. 221, pl.
17, figs. 2 to 4, 7, 1894 (Port Jackson;
Maroubra).

Solenognathus hardwickii Saville-
Kent, Naturalist in Australia, p. 186,
1897 (Moreton Bay).

Depth 14; head $6\frac{2}{3}$, $2\frac{2}{5}$ in trunk. Snout $1\frac{2}{3}$ in head; eye 8, $4\frac{1}{2}$ in snout; opercle with radiating striae. 1482

Rings 25 + 58; covered with prickly asperities except on gill membranes, fin bases, brood areas, around vent and below prehensile part of tail; median row of back scutes not elevated; medio lateral body rings become swollen outwards below dorsal fin to form roof-like shelter over brood-area.

D. 43, in sunken area along 11 tail rings, radial bases elevated. Brood pouch over 17 caudal rings, with well marked hexagonal pits anteriorly for holding eggs. A. rays 4; pectoral 23.

Yellowish, darker on tail. Blackish
band along scutes forming dorsal
ridges, continued on nape anteriorly,
diffused below last dorsal ray
posteriorly. Tail behind broad
area smoky brown. Faint brown
stripe obliquely through blue eye.
Fins yellowish, ill defined smoky
band along lower part of dorsal.
Length 463 mm. (Whitley.)

Lord Howe Island.

Genus Haliichthys Gray

Haliichthys Gray, Proc. Zool. Soc.
London, p. 38, 1859. (Type
Haliichthys taeniophorus Günther,
monotypic.)

Body elongate, trunk wide as deep, hexagonal or scarcely heptagonal as abdominal keel feeble. Tail tetragonal, prehensile, much longer than trunk. Head compressed, with broad crest on occiput and neck, with some strong spines and pair of lateral lines. Snout quadrilateral, longer than rest of head, with pair of lateral spines and 2 ventral cutaneous filaments medially. ~~Opercle~~ Eyes large, prominent, pair of spines above and below. Opercle vaulted,

with convex beel, ascending hindwards and upwards, basal half with strong curved spine. Shields smooth, edges with prominent spines medially, except lower surface of end of tail. No intermedial shields, preopercular and opercular present. Three strong spines before pectoral base. Long, more or less arborescent cutaneous flaps at base of numerous spines on tail and trunk edges, also orbit and occiput. Upper and lower beels of trunk and tail discontinuous, median trunk and lower tail beels continuous. Dorsal on 5 or 6 rings, base elevated, middle somewhat before anus. Anal small. Pectorals broad. Eggs numerous, rather small, isolated in cutaneous cells on tail and enclosed in complete brood pouch, formed by pair of lateral cutaneous folds, beginning behind anus and coalescing in median line.

One species.

Halichthys taeniophorus Gray

Halichthys taeniophorus Gray, Proc.
Zool. Soc. London, vol. 27, p. 39, pl. 7,
1859 (type locality, Freycinet's Harbor,
Shark's Bay, Western Australia).

— Duncker, Fauna Südwest-
Austral. Michaelson and Hartmeyer,
vol. 2, ^{pt. 1,} p. 236, 1909; ^{(Shark's Bay).} Mitteil. Naturh.
Mus. Hamburg, vol. 32, p. 112, 1914
(1915) (North West Australia), Cape
York, Torres Straits, Shark's Bay,
Freycinet's Harbor). — Weber and
Beaufort, Fishes Indo Austral.
Archip., vol. 4, p. 106, fig. 44, 1922
(Prince of Wales Island). — McCulloch and Whitley, Mem. Queensland
Mus., vol. 8, pt. 2, p. 137, July 7,
1925 (reference). — Fowler, Mem.

Boulenger, Cat. Fishes Brit. Mus., vol. 1,
1895, p. 211 (Zanzibar, Mauritius, Ceylon,
Manado, Ponapé, Meduro). — Jordan
and Snyder, Annot. Zool. Japon., vol. 3,
1901, p. 74 (southern Japan). — Fowler,
Journ. Acad. Nat. Sci. Phila., ser. 2,
vol. 12, 1904, p. 524 (Palau). — Evermann
and Seale, Bull. Bur. Fisher., vol. 26,
1906(1907), p. 76 (San Fabian). — Regan,
Ann. Natal Mus., 1908, p. 244 (Kosi Bay).
— Gilchrist and Thompson, Ann. South
Afr. Mus., vol. 13, pt. 3, 1913, p. 67 (Natal).
— Fowler, Papea, no. 58, June 18, 1918,
p. 63 (Philippines); Bishop Mus. Bull.,
no. 22, 1925, p. 9 (Guam). — Barnard,
Ann. South Afr. Mus., vol. 21, 1927, p. 478
(Natal and Zululand coasts).

1487

Bishop Mus., vol. 10, p. 112, 1928
(compiled).

Halieichthys taeniophora Duméril,
Hist. Nat. Poiss., vol. 2, p. 531, 1870
(compiled). — McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 94, June 29, 1929 (reference).

Phyllopteryx taeniophorus Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 197,
1870 (type); Macleay, Proc. Linn.

Rep. Voy. Challenger, vol. 1, pt. 6, p. 50,
1880 (Lape York).

— Weber,
Semon, vol. 5, p. 275 (115), 1895
(coast of New Guinea).

1487

Bishop Mus., vol. 10, p. 112, 1928
(compiled).

Halieichthys taeniophora Duméril,
Hist. Nat. Poiss., vol. 2, p. 531, 1870
(compiled). — McCulloch, New Austral. Mus.,
vol. 5, pt. 1, p. 94, June 29, 1929 (reference).

Phyllopteryx taeniophorus Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 197,
1870 (type); Macleay, Proc. Linn.
Soc. New South Wales, vol. 6, p. 303,
1882 (compiled).

— Weber, Zool. Forsch. Austral.
Simon, vol. 5, p. 275 (115), 1895
(coast of New Guinea).

nona
M
7, 8, 8, 1
, 2, 2, 2
0, 6, 8, 1

below preorbital most its length. No
supplemental maxillary. Mouth small,
mouth horizontal, somewhat protractile.

Holocentrus maculatus Bloch, Nat.
 Ausl. Fische, vol. 4, pt. 7, 1790, p. 96,
 pl. 242, fig. 3. East Indies. — Walbaum,
 Artedi Pisc., vol. 3, 1792, p. 646 (on Bloch).
 — Forster, Fauna Indica, 1795, p. 16. —
Schneider, Syst. Ichth. Bloch, 1801, p.
 315 (East Indies).

Serranus maculatus Bleeker, Nat.
 Tijds. Ned. Indië, vol. 11, 1856, p. 398
 (Bouro). — Day, Fishes of India, pt. 1,
 1875, p. 14, pl. 2, fig. 4 (types of Serranus
gaimardi); Fauna Brit. India, vol. 1,
 1889, p. 447. — Fowler, Proc. Acad. Nat.
 Sci. Phila., 1907, p. 257 (Padang example);
 1927, p. 275 (Orani; Philippines).

Epinephelus maculatus Bleeker, Atlas
 Ichth. Ind. Néerl., vol. 7, 1873-76, p. 50, pl.
 (8) 286, fig. 3, pl. (11) 289, fig. 2 (Java,
 Celebes, Menado, Ternate, Batjan, Buru,
 Amboina, Timor, New Guinea). —

Depth 20; head 5, $1\frac{3}{5}$ times trunk.
Snout $1\frac{4}{5}$ in head from snout tip,
nearly twice postorbital; eye $7\frac{1}{4}$,
 $4\frac{1}{5}$ in snout.

Rings 19 + 44 or 45,
D. 24 to 26, on 3 or 4 trunk
rings and 2 caudal; A. 4;
pectoral rays 20 or 21.

Brown, with irregular dark
bands across back, abdomen
whitish, cutaneous appendages
black. Length 300 mm.

(Weber and Beaufort.)

East Indies, Western Australia,
North west Australia, Queensland.

Genus Acentronura Kaup

Acentronura Kaup, Cat. Lophobr.
Fish Brit. Mus., p. 18, 1856.
(Type Hippocampus gracilimus
Schlegel, monotypic.)

Atelurus Duméril, Hist. Nat.
Poiss., vol. 2, p. 584, 1870. (Type
Atelurus germani Duméril,
monotypic.)

Trunk slightly compressed, slender.
Tail prehensile, finless. Occiput
compressed into crest, without
coronet. Shields without spines.
Trunk ~~heel~~^{edge} continuous with tail
~~heel~~^{edge}. Pectoral present. Egg
pouch caudal, basal on tail.

211

Em 29 Lethrinus leutjanus (Lacépède)

Bodianus leutjan Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 281, 293. "Collection zoologique cédée par la Hollande à la France." no locality.

Lethrinus leutjanus Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 304 (no locality, probably Java). $\frac{1}{m}$ Günther, Cat. Fishes

Brit. Mus., vol. 1, 1859, p. 461 (no locality).

$\frac{1}{m}$ Schmeltz, Cat. Mus. Godeffroy, no. 1, 1864, p. 8 (South Seas).

$\frac{1}{2}$ Kner, Reise Novara, Fische, 1865, p. 82

(Madras). $\frac{1}{m}$ Bleeker, Atlas Ichth. Ind.

Néerland., vol. 8, 1876-77, p. 120, pl. (76)

354, fig. 5 (Sumatra, Java, Amboina). $\frac{1}{m}$

Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 44 (Indian Seas). $\frac{1}{m}$

Meyer, An. Soc. Espan. Hist. Nat. Madrid,

vol. 14, 1885, p. 19 (North Celebes). $\frac{1}{m}$ Jordan

and Evermann, Proc. U. S. Nat. Mus., vol.

25, 1902, p. 350 (Formosa; Giran). $\frac{1}{m}$

Jordan and Richardson, Mem. Carnegie

Mus., vol. 4, no. 4, 1909, p. 187 (Giran). $\frac{1}{m}$

Fowler, Copeia, no. 58, June 18, 1918, p. 64

Analysis of Species

a.¹ D. rays 15 or 16.

b.¹ Dorsal ridges of trunk continuous with upper caudal ridge.

gracillissima.

b.² Dorsal ridges of trunk not continuous with upper caudal ridge.

australe.

a.² D. rays 12; body and head with many long filaments. tentaculata.

1491

Acentronura gracillima (Schlegel)

Hippocampus gracillimus Schlegel,
Fauna Japonica, Poiss., pt. 15, p. 274,
pl. 120, fig. 1, 1850 (type locality,
Japan) 6 (not 7 as stated in text)

— Bleeker, Verh. Batavia. Genoot.
(Nat. Ichth. Japan), vol. 25, p. 21,
1853 (reference).

Acentronura gracillima Kaup, Cat.
Lophobr. Fish Brit. Mus., p. 18, 1856
("Leyden Museum"). — Günther, Cat.
Fish. Brit. Mus., vol. 8, p. 198, 1870
(compiled). — Duméril, Hist. Nat.
Poiss., vol. 2, p. 527, 1870 (compiled).
— Day, Fishes of India, pt. 4, p.
681, pl. 176, fig. 1, 1878; Fauna
British India, Fishes, vol. 2, p.
467, fig. 168, 1889. — Duncker,
Mitteil. Naturh. Mus. Hamburg,
vol. 32, p. 114, 1914 (1915) (Nagasaki).

Acentromura gracillissima Jordan
and Snyder, Annot. Zool. Japon.,
vol. 3, p. 58, 1901 (Nagasaki). —
Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 97,
1913 (Japan).

Atelurus germani Duméril, Hist.
Nat. Poiss., vol. 2, p. 584, 1870 (type
locality, Cochin China).

1493

Head $1\frac{2}{3}$ in trunk; head and trunk $1\frac{1}{2}$ in tail. Snout $2\frac{2}{3}$ in head; eye $1\frac{1}{2}$ in snout, 2 in postorbital.

Rings 13 + 45 or 46. Dorsal ridges of body continuous with tail ridges. Suborbital edges very prominent, join above snout to form triangular crest, then spread to form triangular figure above snout. Occiput divided by depression. Body slightly thicker than head.

D. 16, fin on 4 body rings and 2 caudal rings, base with prominent elevation; anal rays 3; pectoral rays 12. Egg pouch on 13 plates.

Brownish, with small pale dots and dark markings. Dorsal with ~~small~~ groups of small

$\frac{1}{2}$ Gilchrist and Thompson, Ann.

South African Mus., vol. 6, 1908-11, p. 167 (Katal); Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 357 (references). $\frac{1}{2}$ Thompson, Marine Biol. Rep. South Africa, no. 4, 1918, p. 87 (references).

Diplodus cervinus Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 690 (Saldanha Bay, Table Bay, False Bay, East London, Natal).

Sargus hottentottus Smith, Illustr.

Zool. South Africa, Fishes, 1849, pl. 23, fig. 1. South East coast of South Africa.

$\frac{1}{2}$ Pappe, Synop. Edible Fishes Cape, 1853, p. 17 (Table Bay). $\frac{1}{2}$ Bleeker, Natuurk.

Tijdschr. Nederl. Indië, vol. 21, 1860, p. 52 (name). $\frac{1}{2}$ Kner, Reise Novara, Fische, 1865,

p. 78 (Cape of Good Hope).

Sargus hottentottus Castelnau, Mém. Poiss.

Afrique Australe, 1861, p. 17 (Table Bay).

blackish dots, forming dark
crossband. Length 62 mm.

(Jordan and Snyder.)

Japan.

long, pointed, falcate, reaches base of first anal spine, shorter with age, "circa $\frac{1}{3}$ der Kopflänge gleich".

Above bluish, below silver white. Large black blotch on caudal peduncle and smaller in pectoral axil. Length 258 mm.

Cur 129 Diplodus trifasciatus (Rafinesque)

Vargus trifasciatus Rafinesque, Carrat. muov. Animal. Sicilia, 1810, p. 50. Sicily.

Vargus fasciatus Valenciennes, Hist. nat. Poiss., vol. 6, 1830, p. 59. no locality. ^m

Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 448 (no locality).

Charax cerwinus Lowe, Trans. Zool. Soc. London, vol. 2, 1833 (1841), p. 177.

Madeira.

Vargus cerwinus Günther, Cat. Fishes Brit. Mus., vol. 1, 1858, p. 448 (Lanzarote; Cape Verde; type of Vargus hottentottus Smith).

Acentronura australe Waite and Hale

Acentronura australe Waite and Hale,
Records South Austral. Mus., vol.
1, no. 4, p. 317, fig. 53, 1921 (type
locality, St. Vincent Gulf, South
Australia).

1496

Body deepest anteriorly, nearly twice wide as deep in female, 3 times deep as wide in male. ^{shorter than postorbital} Snout $2\frac{9}{10}$ (female), $3\frac{1}{5}$ (male) in head; eye $1\frac{4}{5}$ (female), $1\frac{1}{2}$ (male) in snout, 5 to $5\frac{1}{3}$ in head.

Head 2 (female) or $1\frac{2}{3}$ (male) in trunk, which 2 (female) or $1\frac{2}{5}$ (male) in tail.

Rings 12 + 38, brood rings 12 caudal. Female with ~~short~~ supraorbital spines blunt, triangular, each bearing tufted filament longer than snout, converging before eyes where forming small spike; occiput elevated, much compressed, tufted filament on summit and 1 each side of base posteriorly; low nuchal ridge, highest anteriorly; opercles smooth. Male without filament on supraorbital spines; preorbital spine very small; few filaments on body and tail spines,

none on head. Ridges rather feebly raised, angles well defined; upper trunk ridge ends below middle of dorsal and above origin of ^{upper} caudal ridge; median lateral ^{trunk} ridge continuous with lower caudal ridge; lower lateral and ventral trunk ridges end at vent; very feeble spine at intersection of ridges with faintly raised margins of rings; about every third spine with tufted filament.

D. 15, on 12 caudal rings; anal minute. Female 54.5 mm, male 46 mm. (Waite and Hale.)

South Australia.

1498

Acentroura tentaculata Günther

Acentroura tentaculata Günther,
Cat. Fish. Brit. Mus., vol. 8, p. 516,
1870 (type locality, Gulf of Suez,
Red Sea). — Duncker, Mittel.
naturh. Mus. Hamburg, vol. 32,
p. 114, 1914 (1915) (Red Sea; Suez;
Torres Straits). — Mc Culloch
and Waite, Mem. Queensland
Mus., vol. 8, pt. 2, p. 138, July 7,
1925 (reference).

Depth equals head without snout, body slightly compressed. Snout very short, shorter than postorbital; profile before eyes deeply concave, hind part of head strongly compressed. Tail rather longer than body.

Body rings 12. Body and tail with scarcely any tubercles, with series of long fringed tentacles and filaments; head with similar appendages.

Dorsal apparently 13, on 4 rings, opposite vent. Closed egg pouch under tail of male. Length 50 mm. (Günther.)
Red Sea.

is ^a distinct species. Steindachner
~~contents~~ it is deeper, depth 3
 compared with $3\frac{1}{3}$ in total by
 Klunzinger and Day for Diplodus
noct, yet Day's figure shows depth
 $3\frac{1}{8}$ in total. Steindachner gives the
 following for Largus kotschyi:

Depth $2\frac{3}{4}$ to $2\frac{4}{5}$ in total, strongly
 compressed; head little over 4. Snout
 more or less pointed, $2\frac{1}{5}$ to $2\frac{1}{4}$ in head;
 eye $3\frac{3}{5}$, $1\frac{1}{2}$ to $1\frac{3}{5}$ in snout; mouth
 angle reaches eye; incisors little
 oblique, 8 in each jaw in front; in
 young 4 or 5 rows of small molars,
 with age only 2 rows or 2 or 3 middle
 rows enlarged; interorbital 2 to $3\frac{1}{3}$.

Scales 58 to 62 in lateral line, of
 which 5 on caudal base; 8 above, 15 or
 16 below; 4 or 5 rows on cheeks.

D. XVII, 13; A. III, 12 or 13; pectoral